CLERK'S COPY.

117

127309
S.C.

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1930

No. ~~852~~ 43

BANDINI PETROLEUM COMPANY, COMMODORE PETROLEUM COMPANY, WILSHIRE OIL COMPANY, ET AL., APPELLANTS,

vs.

THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES AND HONORABLE WILLIAM HAZLETT, AS ONE OF THE JUDGES THEREOF

APPEAL FROM THE DISTRICT COURT OF APPEAL OF THE STATE OF CALIFORNIA, SECOND APPELLATE DISTRICT

FILED APRIL 6, 1931

(35,774)

(35,774)

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1930

No. 852

BANDINI PETROLEUM COMPANY, COMMODORE PETROLEUM COMPANY, WILSHIRE OIL COMPANY, ET AL., APPELLANTS,

vs.

THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES AND HONORABLE WILLIAM HAZLETT, AS ONE OF THE JUDGES THEREOF

APPEAL FROM THE DISTRICT COURT OF APPEAL OF THE STATE OF CALIFORNIA, SECOND APPELLATE DISTRICT

INDEX

	Original	Print
Record from district court of appeal, second appellate district of California	3	1
Petition for writ of prohibition	3	1
Exhibit No. 1—Summons and complaint	30	18
Exhibit "A"—Map	57	36
Exhibit "AA"—List of wells	57	36
Exhibit No. 2—Order to show cause	58	37
Exhibit No. 3—Affidavit of Reed D. Bush	63	40
Exhibit No. 4—Affidavit of Emile Hugenin	71	44
Exhibit No. 5—Affidavit of E. G. Gaylord	76	49
Exhibit No. 6—Affidavit of Claude C. Brown	80	53
Exhibit 1—Graph showing production	97*a*	60
Exhibit D—Graph showing production	97*b*	60

JUDD & DETWEILER (INC.), PRINTERS, WASHINGTON, D. C., APRIL 22, 1931

	Original	Print
Exhibit No. 7—Demurrer of defendants Ambassador Petroleum Co., Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Co., Inc., and Wilshire Annex Oil Co.	98	61
Memorandum of points and authorities in support of demurrer and motion to strike out	114	70
Exhibit No. 8—Answer of defendants Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, Inc., and Wilshire Annex Oil Company	127	78
Exhibit No. 9—Affidavit of Victor A. Machris on behalf of defendants Wilshire Oil Company, Inc., Bandini Petroleum Company, Commodore Petroleum Company, Ambassador Petroleum Company, and Wilshire Annex Oil Company	186	119
Exhibit No. 10—Affidavit of George L. Machris on behalf of defendants Wilshire Oil Company, Inc., Bandini Petroleum Company, Commodore Petroleum Company, Ambassador Petroleum Company, and Wilshire Annex Oil Company	201	122
Exhibit No. 11—Affidavit of Arthur I. Davis on behalf of defendants Wilshire Oil Company, Inc., Bandini Petroleum Company, Commodore Petroleum Company, Ambassador Petroleum Company, and Wilshire Annex Oil Company	205	124
Exhibit No. 12—Affidavit of Merwin H. Soyster on behalf of defendants Wilshire Oil Company, Inc., et al	218	132
Exhibit No. 13—Affidavit of Roy G. Mead on behalf of defendants Wilshire Oil Company, Inc., et al	222	135
Exhibit No. 14—Affidavit of G. R. Kenny on behalf of Ambassador Petroleum Company et al	242	147
Exhibit No. 15—Amendments to complaint for injunction	264	160
Exhibits "B" and "C"—Tables showing wells	269a	164
Exhibit No. 16—Amendment to demurrer of defendants Ambassador Petroleum Company et al	270	165
Exhibit No. 17—Amendment to answer of defendants Ambassador Petroleum Company et al	[illegible]	168
Exhibit No. 18—Preliminary injunction	[illegible]	176
Exhibit No. 19—Order modifying preliminary injunction and extending to new parties the preliminary injunction as modified	315	190
Order directing writ of prohibition to issue	327b	197
Alternative writ of prohibition	328	197
Demurrer to petition	331	199
Opinion, Thompson, J	333	200
Order denying writ of prohibition	363a	218
Petition for rehearing	372	224

	Original	Print
Order denying rehearing	486	226
Petition for hearing by supreme court	490	235
Order denying petition for hearing, supreme court	671*a*	241
Petition for appeal, assignments of error, and prayer for reversal	672	242
Order allowing appeal	692	253
Supersedeas and cost bond.....(omitted in printing)..	694	
Citation and service.....(omitted in printing)..	699	
Præcipe for transcript of record	705	254
Appellee's præcipe for transcript of record	707	255
Order enlarging time	710	256
Certificate as to Federal questions involved	715	257
Stipulation re transcript of record	719	258
Topical index to "brief in support of petition and answer to memorandum of authorities"	724	261
Extracts from Rule XXX of supreme court and district court of appeal of California	730	266
Clerk's certificate.....(omitted in printing)..	731	
Order extending time	733	267
Statement of points to be relied upon and stipulation as to parts of record to be printed	739	267

[fols. 1 & 2] [File endorsement omitted]

[fol. 3]

IN DISTRICT COURT OF APPEAL, SECOND APPELLATE DISTRICT, STATE OF CALIFORNIA, DIVISION TWO

BANDINI PETROLEUM COMPANY, a Corporation; Commodore Petroleum Company, a Corporation; Wilshire Oil Company, Inc., a Corporation; Wilshire Annex Oil Company, a Corporation, and Ambassador Petroleum Company, a Corporation, Petitioners,

vs.

THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR the County of Los Angeles and Honorable William Hazlett, as One of the Judges Thereof, Respondents

PETITION FOR WRIT OF PROHIBITION—Filed April 9, 1930.

To the Honorable the District Court of Appeal of the State of California, Second Appellate District, Division Two:

Your petitioners above named, jointly and severally, respectfully apply for a writ of prohibition by this, their [fol. 4] verified petition, and in this behalf set forth the following facts and causes for issuance of the writ, namely:

1. Each of petitioners, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, Inc., Wilshire Annex Oil Company and Ambassador Petroleum Company, is now, and at all times herein mentioned has been, a corporation duly organized, created and existing under the laws of the state of California, with its principal place of business in the county of Los Angeles in said state.

2. On September 11, 1929, the People of the State of California, on relation of Fred G. Stevenot, Director of Natural Resources of the state of California, commenced an action in the Superior Court of the state of California in and for the county of Los Angeles, against Associated Oil Company

and others, including each of the petitioners, which said action is numbered 287,460 in the files of said Superior Court, and on said last mentioned date the clerk of said court duly issued a summons upon said complaint, a true copy of which complaint marked Exhibit 1, is annexed to this petition and hereby made a part hereof with the same force and effect as if set out at length in the body of this petition.

[fol. 5] 3. On said date said Superior Court issued an order to show cause why an injunction pendente lite should not be issued, which order was directed to each of the defendants in said action, and a copy of said order to show cause, together with a copy of the affidavits of Reed D. Bush, Emile Huguenin, E. G. Gaylord and Claud C. Brown, and a memorandum of authorities on application for injunction filed in support of said order to show cause, and a copy of said summons and complaint, were thereafter served upon petitioners and filed in said action. A true copy of said order to show cause is hereto annexed and marked Exhibit 2, and is hereby referred to and made a part hereof. A true copy of each of said affidavits is annexed hereto and marked, respectively, Exhibits 3, 4, 5 and 6, in the order above named, and they are hereby referred to and made a part hereof. Thereafter said order to show cause came on for hearing before the Honorable Walter S. Gates, one of the judges of said Superior Court, and was continued for hearing to the 14th day of October, 1929.

4. As a part of their return to said order to show cause, petitioners duly and regularly filed a demurrer to said complaint, a copy of which demurrer (together with their points and authorities) is annexed hereto and marked Exhibit 7, and is hereby referred to and made a part hereof. On Octo-
[fol. 6] ber 14, 1929, said petitioners last named filed, as a part of their return to said order to show cause, their verified answer, a true copy of which is annexed hereto marked Exhibit 8, and is hereby referred to and made a part hereof. Petitioners hereby adopt the allegations and denials of said answer and reallege the same in this petition with the same force and effect as if set forth at length and in haec verba herein.

5. As a part of their return to said order to show cause, petitioners duly and regularly served and filed the affi-

davits of Victor A. Machris, George L. Machris, Arthur I. Davis, Merwin H. Soyster, Roy G. Mead and G. R. Kenney, copies of which, marked, respectively, Exhibits 9, 10, 11, 12, 13 and 14, are hereto annexed, and are hereby referred to and made a part hereof.

6. Said order to show cause came on for hearing and was called for hearing on the 14th day of October, 1929. The hearing of said order to show cause was thereafter continued from time to time, and said hearing was completed on March 19, 1930. During the course of said hearing arguments upon said demurrer and upon the motion of said demurring defendants to strike portions of the complaint were presented and heard, and during such argument the plaintiffs were granted leave to file, and did file, an amendment to said complaint, a copy of which is annexed hereto, [fol. 7] marked Exhibit 15, and is hereby referred to and made a part hereof. Thereafter, said demurring defendants filed a demurrer to said complaint as amended, a copy of which is annexed hereto, marked Exhibit 16, and is hereby referred to and made a part hereof, and also filed an amended answer to said complaint as amended, a copy of which is annexed hereto, marked Exhibit 17, and is hereby referred to and made a part hereof. No other pleadings or affidavits in support of or opposing said order to show cause were filed in said action by plaintiffs or by any of petitioners other than those hereinabove referred to, excepting that said petitioners moved to strike certain portions of said complaint and certain portions of said amendment to said complaint, which said motions were denied and said demurrers overruled during the course of said hearing. All of said pleadings and affidavits were received in evidence upon the hearing of said order to show cause, in addition to oral and documentary evidence.

7. Petitioners allege, and it appears from the uncontradicted evidence introduced upon the hearing of said order to show cause that the use of natural gas as a propelling force in moving and producing oil is prevalent in the state of California and is according to the universal custom of [fol. 8] the various localities throughout California in which oil and natural gas are produced from flowing wells; that what is a reasonable proportion of natural gas to the

amount of oil produced from the same well in said Santa Fe Springs oil field referred to in said complaint, varies widely in different parts of said field and in different parts of the same producing zone, and varies with each well penetrating any zone in said field, with the age of the well, increasing frequently as the well becomes older, and is governed largely by natural conditions which cannot be controlled to any great extent; that no natural gas is being produced by any of petitioners from any oil well or wells in said oil field in any quantity exceeding a reasonable proportion to the amount of oil produced from the same well or wells or any quantity more than is reasonably or necessarily required in the production of oil therefrom, in accordance with efficient methods and appliances; that none of the oil produced from any of the wells operated by any of petitioners in said field could or can be produced without the production of natural gas as a necessary and inevitable concomitant, and it is not and has not been and will not be, possible for any of petitioners to operate any wells, now, heretofore or hereafter owned or operated by any of them, and to produce oil therefrom without the production of natural gas in reasonable quantities as a necessary con- [fol. 9] comitant; that all of the owners and/or operators of each and every well in said field which are and have been producing oil and gas, are operating such wells primarily and chiefly for the oil produced and to be produced therefrom, and that the production of gas therefrom is and has been incidental and a necessary result; that it would not be possible to produce oil from any of the flowing wells in said field without the production of natural gas; that the chief and primary value of the natural gas produced from the flowing wells in said field is in flowing oil to such wells and lifting the oil produced therefrom to the surface; that it has not been and will not be possible to profitably or commercially produce oil from the O'Connell and lower producing oil zones in said field without such utilization of natural gas; that the use and utilization of natural gas in flowing and lifting oil to and out of the flowing wells in said field in a reasonable proportion of gas to the amount of oil produced from the same well is the most valuable and beneficial use which can be made thereof; that petitioners respectively were, at the time of the filing of their answer, to wit, on or about October 12, 1929, producing

from wells operated by them respectively in said field oil of the approximate amounts and of the reasonable market value set opposite their respective names, to wit:

[fol. 10]

Defendant	Barrels of oil per diem	Approximate market value
Bandini Petroleum Company	13,591	$18,347.85
Commodore Petroleum Company	251	338.85
Wilshire Oil Company, Inc.	9,088	12,268.80
Wilshire Annex Oil Company	4,150	5,602.50
Ambassador Petroleum Company	5,172	6,982.20;

that petitioners respectively were, on March 16, 1930, producing from wells operated by them respectively in said field oil of the approximate amounts and of the reasonable market value set forth in the following schedule, which also shows the amount of gas produced and reasonably necessary to produce the amount of oil produced from each lease, and the name of the petitioner and of the lease producing the same:

[fol. 11]

Company and lease	Daily net oil produced 3-16-30 (barrels)	Market value of net oil	Daily amount of gas required to produce said oil (M. C. F.)	Daily gas allowed to be produced under injunction (M. C. F.)
Ambassador Petroleum Company:				
Baker Lease	984	$1,525.20	3931	1984
Bandini Petroleum Company:				
Off Lease	10,858	16,829.90	28445	13140
Commodore Petroleum Company:				
Babonet Lease	1,754	2,718.70	6019	2179
Landl Lease	1,689	2,617.95	6795	2106
Wilshire Annex Oil Company:				
Eagle Lease	404	626.20	884	485
Koontz Lease	1,397	2,165.35	2496	1620
Crawford Lease	465	720.75	1576	636
Wilshire Oil Company, Inc.:				
Baker Lease	208	322.40	1776	262
Cecelia Lease	984	1,525.20	3165	1200
Crawford Lease	132	204.60	145	168
Petersen Lease	679	1,052.45	1888	780
Aggregate Totals	19,554	$28,372.44	57120	24560

[fol. 12] that at the time of the commencement of this action, and at all times up to and including March 19, 1930, the amount of actual gas produced from each of the wells on said leases did not exceed a reasonable proportion to the amount of oil produced from each of said wells at the same time; in addition to the use and utilization of such natural gas then producing oil from said wells, the said natural gas necessarily and unavoidably produced from the wells on said leases was further utilized in the manufacture of casinghead gasoline; the aggregate value of such casinghead gasoline so manufactured daily was and is approximately $3,000.00 per day; during all of said time and since, so much of the resulting dry natural gas remaining after the extraction and manufacture of casing head gasoline as aforesaid as could be utilized further, was, and now is, further utilized for fuel purposes upon the various leases and for field and other uses in the operations of petitioners, and so much as could be sold was sold, but the amount sold was small; that there was and is no other available means to any of petitioners for any further utilization of the remaining dry gas, and such remaining dry gas had, and has, no market value; and notwithstanding, during all of said times, that petitioners made diligent efforts so to do, none of them has been able to sell or even give away the same; [fol. 13] by reason of the premises petitioners were and are compelled after making the aforesaid and beneficial utilizations, thereof, to release or permit the remaining dry gas to escape into the air.

8. Petitioners allege, and it further appears from the uncontradicted evidence introduced at said hearing that each of the wells of petitioners in said Santa Fe Springs oil field is efficiently operated and is so operated that it does not injuriously affect the operations of others owning and/or operating wells in said field; that the gas-oil ratio of each well producing oil and gas is a fair index to the efficiency of such well in the reasonable utilization of natural gas in the production of oil; that the gas-oil ratio of the wells of petitioners is the third lowest amongst the nine largest producers of oil in said Santa Fe Springs oil field and the average production of oil per well of petitioners from said field is the third largest of said nine largest producers of oil in said field; that the enforcement of the order granting the preliminary injunction hereinafter referred

to requires the shutting down and/or killing by petitioners and other operators in said field of many producing wells; that the average cost of such wells is approximately $150,000.00 each; that the danger of permanent injury to result in shutting down a well is great, particularly as to wells located on the outer edges of said field, as are many of the [fol. 14] wells of petitioners, and that to attempt to curtail the production of oil and gas from such wells will endanger such wells; that in the case of many of such wells as are located on the flank or edge of the field there is serious danger of water encroachment from the edges of the field, and that in some instances this has prevented and will probably prevent replacing such wells to their former production of oil; that the allowed gas production to petitioners would require them to shut in and/or kill a number of their producing oil wells, and that this would impair the ability of the petitioners to protect themselves against offset wells on large adjoining leaseholds.

9. The amount of oil which can be produced by petitioners with the allowed gas production under said order as modified, through the most efficient operation of such of the wells thereon as are not required to be shut in and killed as aforesaid, does not exceed the amounts set opposite the names of petitioners and their respective leases in the following schedule, and will require a reduction in the production of oil from each of said leases as of March 20, 1930, as shown, in the following schedule:

[fol. 15]

Name of company and lease	Actual production of net oil as of March 20, 1930	Approximate amount of oil which can be produced with allowed gas production
Bandini Petroleum Company:		
Off Lease	11,264	5,812
Commodore Petroleum Company:		
Babonet Lease	1,445	826
Landl Lease	1,536	677
Wilshire Oil Company, Inc.:		
Baker Lease	194	0
Cecelia Lease	810	445
Crawford Lease	185	143
Peterson Lease	534	221
Wilshire Annex Oil Company:		
Eagle Lease	364	200
Koontz Lease	1,926	1,134
Crawford Lease	416	160
Ambassador Petroleum Company:		
Baker Lease	742	593
Totals	**19,416**	**10,211**

[fol. 16] 10. On March 19, 1930, at the conclusion of the hearing of said order to show cause, the court made and signed an order granting an injunction pendente lite, which said order was in words and figures as set forth in Exhibit 18 annexed hereto, which is hereby referred to and made a part hereof. Said order was made over the objections of petitioners, upon the ground that the same was in excess of the jurisdiction of the court and is not authorized by the provisions of the statute under which said action was commenced and maintained, and upon each of the grounds set forth in said demurrer, answer and amendment to answer filed by these petitioners hereinabove referred to, reference to each of which is hereby made for further particulars.

11. On or about March 28, 1930, said court made and filed its order modifying said preliminary injunction, a copy of which said order is annexed hereto marked Exhibit 19, and is hereby referred to and made a part hereof.

12. Immediately after the making and granting of said preliminary injunction on March 19, 1930, petitioners, in an effort to comply therewith, commenced to control and limit the production of gas from their respective wells on said leases, and in so doing to gradually diminish the size of the flow bean or orifice of each well out of which oil and gas is produced, by inserting new flow beans of gradually [fol. 17] diminishing size and using the most skill and knowledge obtainable, with the result that four of their wells died and were killed, and eleven of their wells had to be shut in, and the gas pressure upon the casing head of one of said wells became so great that it burst through the casing head on April 2, 1930, and caught fire, and burned for two days, causing considerable loss and damage and endangered other nearby wells and property. Said well was producing approximately 800 barrels of oil per day, and is probably totally destroyed, and petitioner Bandini Petroleum Company has been irreparably damaged thereby. The cost of said wells so shut in and/or killed is many thousands of dollars, and many—if not all—of said wells have been permanently and irreparably damaged, as aforesaid. There is a serious danger that other wells of petitioners which have been, or will have to be, "pinched back" or curtailed in the production of natural gas, if said orders

are enforced, will die, and that they cannot be restored to their former production.

13. On April 2, 1930, as the result of the acts of petitioners in attempting to comply with said preliminary injunction as modified, the daily production of gas and oil on the respective leases of petitioners, as compared with the production of gas and oil therefrom on March 20, 1930, was reduced as shown in the following schedule:

[fol. 18]

Name of company and lease	March 20, 1930		April 2, 1930		Allowable Net gas (M. C. F.)	Excess production of gas over allowable in M. C. F. on April 2, 1930
	Net gas (M. C. F.)	Net oil (bbls.)	Net gas (M. C. F.)	Net oil (bbls.)		
Bandini Petroleum Company:						
Off Lease	31,500	11,264	17,810	6,625	15,767	2,278
Commodore Petroleum Company:						
Babonet Lease	4,891	1,445	2,479	994	2,179	300
Landl Lease	6,408	1,536	2,504	749	2,106	402
Wilshire Oil Company, Inc.:						
Baker Lease	4,205	194	297	34	262	35
Cecelia Lease	2,694	810	1,207	452	1,200	7
Crawford Lease	139	185	165	143	168	(3—)
Peterson Lease	1,681	534	919	321	780	139
Wilshire Annex Oil Company, Inc.:						
Eagle Lease	863	364	698	285	529	169
Koontz Lease	3,683	1,926	2,663	1,192	2,549	114
Crawford Lease	1,518	416	585	147	636	(51—)
Ambassador Petroleum Company:						
Baker Lease	4,435	742	2,219	848	1,984	235

[fol. 19] As shown by said schedule, the total net gas production of petitioners was reduced between said dates from 62,017,000 cubic feet of gas per day to 33,546,000 cubic feet of gas per day, and the net oil production of petitioners was reduced from 19,416 barrels per day to 11,688 barrels per day. The market value of a barrel of crude oil on said dates was, and is, $1.60 per barrel, so that the decreased daily income and loss in oil to petitioners aggregates approximately $12,500.00 per day. The prevailing price paid to petitioners and other producers for such small portion of the resulting natural gas produced in Santa Fe Springs oil field (remaining after its utilization in producing oil, manufacturing casing-head gasoline, and for field operations) as can be sold is only approximately 5 cents per 1,000 cubic feet; but as heretofore alleged there is no market for such natural gas, and it cannot even be given away. In order for petitioners to further comply with said preliminary injunction as modified, it will be necessary for them to shut in and/or kill other wells, which will cause them further irreparable damage. Plaintiffs, and said Superior Court, have threatened to, and will unless prohibited from so doing, enforce said preliminary injunction as modified, by contempt proceedings, or by other process or orders, forcibly shut in or curtail the production of gas and oil from said leases of petitioners, to conform to said pre-
[fol. 20] liminary injunction as modified. Petitioners are informed and believe, and upon that ground allege, that on April 14, 1930, the plaintiffs and/or said court will cause said preliminary injunction to be further so modified as to materially further decrease and limit the amount of gas and oil which can be produced from the various wells and leases of petitioners, whereby the rights and property interests of petitioners will be further invaded and petitioners will be further irreparably damaged without recourse.

14. The sole authority under which the plaintiffs, so-called, in said proceeding in said Superior Court were acting in instituting, and under which said court was acting in entertaining, the same, and in granting said preliminary injunction and modifying the same as aforesaid, is derived from the provisions of sections 8b, 8d, 9, 14 and 14b, and particularly sections 8b and 14b, of Chapter 718 of Statutes

of 1915 of the state of California, as amended from time to time, which said sections were added or amended by the provisions of Chapter 535 of the 1929 Statutes of the state of California.

15. Said court was and is without jurisdiction to grant or enforce said preliminary injunction and/or said order modifying said preliminary injunction, and in this connection, petitioners and each of them allege the following particulars.

[fol. 21] (a) The statute, under the supposed authority of which said suit was instituted in the Superior Court and the said purported orders were made, is so vague, uncertain and indefinite, and is so devoid of any definition, guide or standard as to what constitutes waste of natural gas or unreasonable waste of natural gas or reasonable waste of natural gas, that it violates the due process clauses of both the federal and California constitutions, and unlawfully attempts to delegate to the Superior Court the power to legislate as to what shall constitute waste of natural gas and unreasonable waste of natural gas and reasonable waste of natural gas, and said Superior Court was exercising legislative powers without, and in excess of its, jurisdiction in attempting to prescribe, enact and prohibit what constitutes unreasonable waste of natural gas by each of petitioners and the other defendants in said action.. The term "unreasonable waste of natural gas" did not at the time of this enactment of said statute have, and has never since acquired, any established or settled meaning by usage or custom.

(b) The said statute permits and does not prohibit the utilization and production of natural gas from any oil well or wells in quantities not exceeding a reasonable proportion to the amount of oil produced from the same well or wells. The said order granting said preliminary injunction, standing by itself and also as modified as aforesaid, is [fol. 22] in excess of the jurisdiction of the court, in that, as appeared from the uncontradicted evidence introduced at said hearing, and as the facts are, none of the oil wells of any of petitioners was, at the time of the making of either of said orders, producing natural gas in quantities exceeding a reasonable proportion to the amount of oil produced from the same well or wells, and the amount of natural gas allowed to be produced from the several leases of

petitioners respectively, as set forth therein, is so low, and is decreased so disproportionately to the amount of oil which can properly and efficiently be produced, and was then being produced, from the wells on said leases respectively, and is decreased so disproportionately to the amount of natural gas reasonably required to produce the oil then being so produced from the producing wells on said leases as aforesaid, that to comply with or enforce said preliminary injunction, as originally made or as modified, requires many of the oil wells on said leases to be shut in and killed, which will endanger and/or irreparably and permanently injure such wells, and cause the production of oil from such oil wells on said leases respectively to be greatly decreased and reduced, for which loss and damage petitioners will be wholly without recourse.

[fol. 23] (c) The statute hereinbefore referred to and the said preliminary injunction and the said order modifying the same, to the extent that they purport to, and that the enforcement thereof will, prohibit petitioners from utilizing such amount of natural gas produced from their respective wells on their respective leases as is reasonably necessary to produce oil therefrom in quantities not exceeding a reasonable proportion to the amount of oil produced from the same well, and to the extent that they require petitioners respectively to shut in and kill many producing oil wells and to curtail the production of oil and gas from their producing oil wells, as in this petition alleged and set forth, for the purpose of conserving such natural gas for the benefit of the general public (which purpose is the sole ground upon which said preliminary injunction and said order modifying said injunction were based by the said Superior Court), without first commencing eminent domain proceedings according to law in a court of competent jurisdiction, and without just compensation first having been made to, or paid into court for, petitioners respectively—constitutes, and the enforcement thereof will constitute, a taking and/or damaging of the property of petitioners and an unlawful invasion and deprivation of the property rights of petitioners without due process of law under both the United States and California [fol. 24] constitutions, and is in excess of the jurisdiction of said court.

(d) The said statute hereinbefore referred to, under the supposed authority of which said action in the Superior Court was commenced and said order granting said preliminary injunction and said order modifying the same were made, does not give the Superior Court jurisdiction to limit the amount of natural gas which may be produced from any property or lease, but, if valid, gives to said Superior Court jurisdiction only to enjoin the unreasonable waste of natural gas. The said order granting said preliminary injunction and the said order modifying the same, in so far as the same attempt to limit the amount of natural gas which may be produced from any lease of any of these petitioners, or of any other defendants in said action, are each beyond, and in excess of, the jurisdiction of said Superior Court.

(e) The said statute is unconstitutional and void upon each and all of the grounds set forth in the amended answer of petitioners hereinbefore referred to and the said amended answer, and upon each of the grounds set forth in the said demurrer of these petitioners, and in the points and authorities annexed thereto, and said statute confers no jurisdiction or authority upon said Superior Court, and the said Superior Court, in attempting to en-
[fol. 25] force said statute and in granting said preliminary injunction and in making said order modifying said preliminary injunction, was acting without, and/or in excess of its, jurisdiction.

15. Petitioners have no plain, speedy or adequate remedy at law. Plaintiffs in said action have filed no bond of any sort in said action, and if said preliminary injunction is later reversed, or if it be later held that plaintiffs in said action were not entitled thereto, petitioners will be wholly without recourse for any loss or damage sustained by them respectively. Before an appeal from said order granting said preliminary injunction and/or said order modifying the same can be heard and determined, if the same are enforced by contempt proceedings or other process, or in any manner many of the wells of petitioners respectively will be shut in and killed and/or curtailed in their oil and gas production, which will deprive them of a large daily production of oil, will cause permanent and irreparable injury and damage. Many of said wells

so shut in or killed cannot later be placed on production, and those that can be replaced on production cannot be restored to the amount of production of oil which they otherwise would have. Petitioners have attempted to restore some of the wells which have been shut in and/or killed in attempting to comply with said preliminary in- [fol. 26] junction, without success. Many of the wells shut in, killed or curtailed, as aforesaid, can not be restored to production, and those of them which can be restored to production cannot be replaced on the oil production which they would otherwise have. Much of the oil which would be produced from the wells of petitioners if said preliminary injunction and said order modifying the same were not complied with or enforced will be lost to petitioners. The effect of said order granting said preliminary injunction and as modified as aforesaid, by virtue of the very existence thereof pending appeal therefrom, is to cast a shadow over the rights of each of petitioners to the full and exclusive use and enjoyment of their properties which no stay in the operation and enjoyment thereof can or could remove. Their respective properties in said Santa Fe Springs oil field, by reason of the mere existence of said preliminary injunction and said order modifying the same, are each rendered less valuable, less usable and less salable. By reason of the existence of said order granting said preliminary injunction and of said order modifying the same, and the threatened enforcement thereof and the resulting taking or damaging thereof, their constitutional rights in and to their respective properties and the use and enjoyment thereof are invaded, notwithstanding any appeal from said order granting said preliminary injunction [fol. 27] or said order modifying the same. The enforcement of said preliminary injunction as originally granted or as modified, will necessarily prevent diligent production of oil and gas by each of petitioners from any of said wells as provided and required under the terms of the respective leases under which the wells of petitioners respectively were drilled and operated which will endanger said leases through proceedings to forfeit same and thus cause a multiplicity of suits. Section 14b of said statute under which said action was commenced and prosecuted, by its

terms provides that no temporary or permanent injunction granted thereunder may be dissolved or stayed pending an appeal, either upon the giving of any bond or undertaking or otherwise. If petitioners are successful on an appeal from said order granting said preliminary injunction and/or said order modifying the same, they will have no recourse against plaintiffs, or otherwise, for the damages which petitioners and each of them have sustained and will daily continue to sustain.

16. Your petitioners are each parties beneficially interested in this proceeding. The names of the parties interested who would be affected by this petition are your petitioners, the respondents herein, and the People of the State of California and Fred G. Stevenot, Director of Nat- [fol. 28] ural Resources of the state of California, plaintiffs in the action herein referred to and now pending in said Superior Court in and for the county of Los Angeles.

Wherefore your petitioners pray that an alternative writ of prohibition be issued restraining the said Superior Court of the state of California, in and for the county of Los Angeles, judge thereof, and its officers and agents and all persons acting through its orders, from taking any steps or proceedings to enforce said order granting said preliminary injunction or the said order modifying the same, against petitioners or any of them or against any of the officers, agents employees or representatives of any of petitioners, either by contempt proceedings or by any process or in any other manner, and from making any order or orders or doing any acts based thereon affecting any of petitioners, and that the said Superior Court and the said Honorable William Hazlett, as judge thereof, be directed and required to show cause before this court, at a specified time and place, why they should not each be absolutely and forever restrained from taking any further proceedings against any of petitioners herein based upon the said order modifying the same, or from making any order or orders or doing any acts based thereon, affecting

[fol. 29] petitioners or any of them; and for such other and further relief as petitioners will be entitled to.

Call & Murphey, by (Sgd.) Robert B. Murphey and (Sgd.) Wm. L. Murphey, Attorneys for Petitioners, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Annex Oil Company, and Ambassador Petroleum Company.

Duly sworn to by George L. Machris. Jurat omitted in printing.

[fol. 30] EXHIBIT 1 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY, GENERAL PETROLEUM CORPORATION of California, Richfield Oil Company of California, Standard Oil Company of California, The Texas Company, Shell Oil Company, Union Oil Company of California, Industrial Fuel Supply Company, Rio Grande Gasoline Company, Standard Gasoline Company, The Norwalk Company, Ambassador Petroleum Co., Bandini Petroleum Company, Bell View Oil Syn., Buckeye Union Oil Company, Commodore Petroleum Company, Cooperative Oil Syndicate of Santa Fe Springs, Tom Donley Land & Oil Company, Elliott Consolidated Oil Company, Graham-Loftus Oil Corp., Oscar A. Howard, Jameson Petroleum Company, C. C. Juliane, Raleigh Oil Company, Reed & Berliner, Inc.; George W. Ring, Rio Grande Oil Company, Second Twin Bell Syn., The St. Helens Petroleum Co., Ltd.; Star Petroleum Company, Sunset Pacific Oil Company, Superior Oil Company, Syndicate Company, Twin Bell Oil Syn., United States Oil and Royalties Company, Universal Consolidated Oil Company, Whiston & Cox Oil Company, Whittier Santa

[fol. 31] Fe Springs Oil Syn. No. 1, George F. Getty, Inc.; Wilshire Annex Oil Co., Wilshire Oil Co., Inc.; Mohawk Petroleum Co., H. A. Bardeen, K. G. & Pulliam, John Doe York, Richard Roe Smullen, John Doe One Company, John Doe Two Company, John Doe Three Company, Richard Roe I, Richard Roe II, Richard Roe III, Doe Roe Syn., Defendants

Action Brought in the Superior Court of the County of Los Angeles and Complaint Filed in the Office of the Clerk of the Superior Court of said County

Summons

The People of the State of California send greetings to Associated Oil Company, General Petroleum Corporation of California, Richfield Oil Company of California, Standard Oil Company of California, The Texas Company, Shell Oil Company, Union Oil Company of California, Industrial Fuel Supply Company, Rio Grande Gasoline Company, Standard Gasoline Company, The Norwalk Company, Ambassador Petroleum Co., Bandini Petroleum Company, Bell View Oil Syn., Buckeye Union Oil Company, Commodore Petroleum Company, Cooperative Oil Syndicate of Santa Fe Springs, Tom Donley Land & Oil Company, Elliott Consolidated Oil Com-
[fol. 32] pany, Graham-Loftus Oil Corp., Oscar R. Howard, Jameson Petroleum Company, C. C. Julian, Raleigh Oil Company, Reed & Berliner, Inc.; George W. Ring, Rio Grande Oil Company, Second Twin Bell Syn., The St. Helens Petroleum Co., Ltd.; Star Petroleum Company, Sunset Pacific Oil Company, Superior Oil Company, Syndicate Company, Twin Bell Oil Syn., United States Oil and Royalties Company, Universal Consolidated Oil Company, Whiston & Cox Oil Company, Whittier Santa Fe Springs Oil Syn. No. 1, George F. Getty, Inc.; Wilshire Annex Oil Co., Wilshire Oil Co., Inc.; Mohawk Petroleum Co., H. A. Bardeen, K. G. & Pulliam, John Doe York, Richard Roe Smullen, John Doe One Company, John Doe Two Company, John Doe Three Company, Richard Roe I, Richard Roe II, Richard Roe III, Doe Roe Syn., Defendants:

You are directed to appear in an action brought against you by the above named plaintiff in the Superior Court of the State of California, in and for the County of Los Angeles, and to answer the complaint therein within ten days after the service on you of this summons, if served within the County of Los Angeles, or within thirty days if served elsewhere, and you are notified that unless you appear and answer as above required, the plaintiff will [fol. 33] take judgment for any money or damages demanded in the Complaint, as arising upon contract, or will apply to the Court for any other relief demanded in the Complaint.

Given under my hand and seal of the Superior Court of the County of Los Angeles, State of California, this 11th day of Sept., 1929.

L. E. Lampton, County Clerk and Clerk of the Superior Court of the State of California in and for the County of Los Angeles, by N. Hollister, Deputy. (Seal Superior Court, Los Angeles County.)

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY, GENERAL PETROLEUM CORPORATION of California, Richfield Oil Company of California, Standard Oil Company of California, The Texas Company, Shell Oil Company, Union Oil Company of California, Industrial Fuel Supply Company, Rie Grande Gasoline Company, Standard Gasoline Company, The Norwalk Company, Ambassador Petroleum Co., Bandini [fol. 34] Petroleum Company, Bell View Oil Syn., Buckeye Union Oil Company, Commodore Petroleum Company, Cooperative Oil Syndicate of Santa Fe Springs, Tom Donley Land & Oil Company, Elliott Consolidated

Oil Company, Graham-Loftus Oil Corp., Oscar R. Howard, Jameson Petroleum Company, C. C. Julian, Raleigh Oil Company, Reed & Berliner, Inc.; George W. Ring, Rio Grande Oil Company, Second Twin Bell Syn., The St. Helens Petroleum Co., Ltd.; Star Petroleum Company, Sunset Pacific Oil Company, Superior Oil Company, Syndicate Company, Twin Bell Oil Syn., United States Oil and Royalties Company, Universal Consolidated Oil Company, Whitson & Cox Oil Company, Whittier Santa Fe Springs Oil Syn. No. 1, George F. Getty, Inc.; Wilshire Annex Oil Co., Wilshire Oil Co., Inc.; Mohawk Petroleum Co., H. A. Bardeen, K. G. & Pulliam, John Doe York, Richard Roe Smullen, John Doe One Company, John Deo Two Company, John Doe Three Company, Richard Roe I, Richard Roe II, Richard Roe III, Doe Roe Syn., Defendants

Complaint for Injunction

Come now The People of the State of California by Fred G. Stevenot, Director of Natural Resources of the said State of California, and complain of the defendants above named and for cause of action allege:

[fol. 35] 1. That each of the defendants above named other than C. C. Julian, George W. Ring, Bell View Oil Syn., Second Twin Bell Syn., Twin Bell Oil Syn., Whittier Santa Fe Springs Oil Syn. No. 1, H. A. Bardeen, K. G. & Pulliam, John Doe York, Richard Roe Smullen, Richard Roe I, Richard Roe II, Richard Roe III, Doe Roe Syn., is a corporation doing business in the County of Los Angeles, State of California. That each of the defendants to this action other than Industrial Fuel Supply Company, Rio Grande Company, Standard Gasoline Company and The Norwalk Company, are producing oil and gas from wells penetrating some or all of the zones in the Santa Fe Springs Oil Field. That all of the defendants to this action are unreasonably wasting natural gas by blowing and releasing and by causing other defendants to blow and release natural gas derived from wells in said Santa Fe Springs Oil Field into the air, as hereinafter in this complaint more particularly alleged.

2. That the above named Fred G. Stevenot was on the 24th day of May, 1929, and ever since has been and now is

Director of Natural Resources of the State of California, and as such Director, head of the Department of Natural Resources of the State of California.

3. That within the said Department of Natural Re-
[fol. 36] sources there is a division created by law for the supervision of petroleum and gas in charge of a chief, known as State Oil and Gas Supervisor, and the said State is divided by law into five oil and gas districts, in each of which said districts there are one or more oil fields. That the conditions hereinafter mentioned as existing in Santa Fe Springs Oil Field in the County of Los Angeles, said state, are prevalent in the other oil fields in the other oil and gas districts, and the use of natural gas as herein mentioned is prevalent over a large portion of the State of California.

4. That Santa Fe Springs Oil Field as herein referred to is that portion of the Rancho Santa Gertrudes, in the County of Los Angeles, and in Oil and Gas District No. 1, State of California, more particularly described as follows:

The Southeast quarter of Section 36, Township 2 South, Range 12 West, and the East half of Section 1, Township 3 South, Range 12 West, and the south half of Section 31, Township 2 South, Range 11 West, and all of Section 5 and all of Section 6, and the North half of Section 7 of Township 3 South, Range 11 West.

That the lines of cross section to mark intersecting vertical planes in the field best disclosing underground conditions in the different zones intersect near the southeast cor-
[fol. 37] ner of Fulton Road and Willis Street, within the boundaries of said oil field, all of which is shown on map, Exhibit "A," hereto attached and hereby made a part of this complaint.

5. That underlying the surface of the land at various depths and within the said Santa Fe Springs Oil Field as above described, are twelve (12) separate oil and gas zones, some of which extend throughout the whole of said oil field area, and some of which zones extend only throughout a portion of said oil field area, and one or more oil and gas zones extend in and under all of said oil field area. That the oil and gas zone commonly known as and hereinafter referred to as Meyer Zone, and the oil and gas zone com-

monly known as and hereinafter referred to as Upper Clark Zone, and the oil and gas zone commonly known as and hereinafter referred to as Lower Clark Zone, and the oil and gas zone commonly known as the Hathaway Zone, extend under the whole of the area of said oil field, but at varying depths and with varying thickness and content of oil and gas in the different parts of said oil field. That each of the other zones herein mentioned likewise extends under the lands of many separate owners in said oil field.

6. That said oil and gas zones in and under the said Santa Fe Springs Oil Field are commonly known as and are referred to herein as:

[fol. 38] (a) Foix Zone.
(b) Bell Zone.
(c) Meyer Zone.
(d) Upper Nordstrom Zone.
(e) Lower Nordstrom Zone.
(f) Upper Buckbee Zone.
(g) Lower Buckbee Zone.
(h) Upper O'Connell Zone.
(i) Lower O'Connell Zone.
(j) Upper Clark Zone.
(k) Lower Clark Zone.
(l) Hathaway Zone or Third Clark Zone.

7. That each of said zones is separated from the adjoining zones by impervious strata substantially parallel thereto, and frequently by strata of sand containing water, the end planes of said zones in many places being closed by strata containing water excluded from the oil and gas zone by the gas pressure therein. That each of said zones is of varying depth, and, so far as known, each of said zones has its greatest thickness in the vicinity of the intersection of the axes of the said oil field above described. That the upper plane of each of said zones nearest the surface, and from which the plane nearest the surface curves downward at an angle of approximately five degrees from the horizontal line, are defined and located substantially as follows:

[fol. 39] (a) Foix Zone,	3450	feet	below	sea	level
(b) Bell Zone,	3650	"	"	"	"
(c) Meyer Zone,	4100	"	"	"	"
(d) Upper Nordstrom Zone,	4900	"	"	"	"
(e) Lower Nordstrom Zone,	5250	"	"	"	"
(f) Upper Buckbee Zone,	5700	"	"	"	"
(g) Lower Buckbee Zone,	5800	"	"	"	"
(h) Upper O'Connell Zone,	6200	"	"	"	"
(i) Lower O'Connell Zone,	6400	"	"	"	"
(j) Upper Clark Zone,	6600	"	"	"	"
(k) Lower Clark Zone,	7200	"	"	"	"
(i) Hathaway Zone,	8000	"	"	"	"

8. That each of said zones in and under said oil field is filled with sand containing oil and gas under pressure in such manner that a portion of the oil is in the form of gasoline vapor, a portion of the gas is dissolved in the oil, a portion of the gas exists as a liquid which becomes a gas when the pressure is sufficiently lowered, a portion of the gas adheres to the surface or interfaces between the gases and liquids, and a portion exists as free gas. That when a well penetrates one of these zones, the gas pressure is released about the well, causing oil and gas to begin to flow through the zone toward the point of lower pressure at the well, and as the fluid flows toward the well there is a drop in the pressure throughout the zone. That the opening of a well into any zone disturbs the pressure of gas in all parts of the zone, and the gas produced or allowed [fol. 40] to escape from one well is replaced by gas and oil moved and drawn from all parts of the zone by the expansion of gas, as aforesaid. That gas underlying any given surface area is not fixed in place but is volatile and moves from place to place within the interstices of the zone sand as the pressure is relieved. That relator is informed and believes and upon his information and belief alleges that with the increase in the flow of gas through and out of any well or wells penetrating any zone of said oil field above a ratio of 2500 cubic feet of gas to a barrel of oil, the proportionate recovery of the oil in the sand of such zone is reduced, that the extent to which the ultimate recovery of oil in the sand is reduced varies with the increase in the rate of flow of gas, so that in some cases the ultimate loss of oil recovery from a zone is double what the loss of oil would

be were a lower ratio of gas discharge maintained from the wells penetrating said zone.

9. That relator is informed and believes and upon and according to his information and belief alleges that each and every withdrawal of gas by one operator through a well entering the sand of any one of said zones reduces the supply available to each other such operator of a well into said zone, and increases the difficulty of each operator in obtaining oil and gas through each other well drilled into [fol. 41] the said zone from the surface of the land, and that each and every such withdrawal of gas does and will reduce the gas pressure in the said zone throughout the whole of said zone as it extends in, under and through said Santa Fe Springs Oil Field. That the unreasonable waste of gas through any well entering the sand in any zone will be a continuing damage and injury to the People of the State of California and to each operator having the right to penetrate said zone and withdraw oil and gas or gas from said zone.

10. That the said area of land within said Santa Fe Springs Oil Field is divided into not less than 1145 parcels at the surface; that said parcels are owned of record by more than 110 individual and corporation owners; that many of said parcels are rectangles less than 75 feet by 100 feet, and that more than 41 operators have wells from the surface into one or more of the said zones above referred to. That two operators have wells from the surface into said Foix Zone; that 9 operators have wells from the surface into said Bell Zone; that 24 operators have wells from the surface into said Meyer Zone; that 7 operators have wells from the surface into said Upper Nordstrom Zone; that 5 operators have wells from the surface into said Lower Nordstrom Zone; that 14 operators have wells from the surface into said Upper Buckbee Zone; that 11 oper- [fol. 42] ators have wells from the surface into said Lower Buckbee Zone; that 23 operators have wells from the surface into the Upper O'Connell Zone; that 19 operators have wells from the surface into the Lower O'Connell Zone; that 14 operators have wells from the surface into the Upper Clark Zone; that 4 operators have wells from the surface into the Lower Clark Zone; and that 8 operators have wells from the surface into said Hathaway Zone. That attached

hereto is map marked Exhibit "A" hereby made a part of this Complaint and on said Exhibit "A" is located each of said parcels and each of said wells.

11. That as your relator is informed and believes and upon and according to his information and belief alleges the gas pressure has been so depleted and dissipated in the Foix Zone, the Bell Zone and the Meyer Zone that oil is produced from each of said zones only by pumping, resulting in increased costs to the operators of the wells producing oil from each of said three zones, and that in the sands of each of the other of said zones, and particularly in the Lower Buckbee Zone, the Upper O'Connell Zone, the Lower O'Connell Zone, the Upper Clark Zone, the lower Clark Zone and the Hathaway Zone are large quantities of natural gas under high pressure, which gas in each zone moves the oil to the wells penetrating such zone, and causes the oil and gas to discharge with great force at the surface [fol. 43] through and out of the wells from the sands in the said zone.

12. That there is now being unreasonably wasted, blown, released and allowed to escape into the air by the acts, commissions, sufferance or insistence of the defendants a large quantity of natural gas, and as relator is informed and believes, an aggregate of more than four hundred million cubic feet of natural gas (after the removal of the gasoline therefrom) is being so unreasonably wasted each day of twenty-four hours from the said subsurface zones of the Santa Fe Springs Oil Field herein referred to, which unreasonable waste of natural gas has continued for more than thirty days last past, and which the defendants threaten to continue indefinitely. That attached hereto and marked Exhibit "AA" is a list of the several wells from which the gas is being so unreasonably wasted, together with a description of their respective locations, and a statement of the approximate amount of gas taken from the wells under each lease and from each Zone and so unreasonably wasted during each twenty-four hours, together with a list of the names of the operators of each such well, and the name of the defendant in charge of such unreasonable waste of natural gas from said wells.

13. That the said defendants threaten and unless restrained by the injunction of this court will continue so to

[fol. 44] unreasonably waste the gas from the sands in said Zones of said Santa Fe Springs Oil Field until the gas pressure in said sands is depleted, and the People of the State of California and the owners of land within said area herein referred to as Santa Fe Springs Oil Field are deprived of the propulsive force of said gas in bringing oil to and through any wells, which they have drilled or may drill into the sands of said zone from their respective surface ownerships, and also be deprived of their share of the natural gas in the said common reservoir of gas and oil existing in the interstices of the sands of said zone, and also be deprived of a large part of the oil in the sands of said zone. That said unreasonable waste of gas exists and continues by the act, omission, sufferance and insistance of defendants and each of them. That defendants threaten, and unless enjoined and restrained by order of this court will continue to discharge, blow and waste into the air gas drawn from said wells, and each of said wells, until the gas throughout the sands of the said zones are so depleted, lost and wasted that they will no longer propel the oil in the sands of said zone toward and through the wells penetrating the said zone. That defendants for more than thirty days next last past have been, now are and each of them is wilfully permitting natural gas wastefully to escape into the atmosphere from wells in said Santa Fe Springs Oil Field [fol. 45] mentioned in Exhibit "A" hereto attached, and shown on map Exhibit "A" hereto attached.

14. That the gas so being unreasonably wasted and permitted to escape into the atmosphere can and should be saved and conserved by defendant operators in said Santa Fe Springs Oil Field for beneficial use by all the operators in said field, and by the People of the State of California, by confining said gas in the Zones of said field until said gas, with the gasoline removed, can be beneficially used for fuel, heat and power.

15. That a cubic foot of gas as referred to in this complaint is measured at a temperature of 60° F. and a pressure of 14.733 pounds per square inch and a barrel of oil as referred to herein contains 42 liquid gallons.

16. That the oil and gas under pressure in the sand of zones far below the surface of the earth, including each of

the zones hereinbefore mentioned, is a natural resource of the People of the State of California, and only to be taken possession of by the owners of the parcels of land above said zones according to boundaries upon the surface of the land, upon the conditions and in accordance with the rules and regulations from time to time provided by law.

17. That each owner of land within the said Santa Fe Springs Oil Field, or his grantee, lessee, or other successor [fol. 46] in title, including each of the defendants to this action, has a right and interest correlative with each and every other such owner to take possession of oil and gas from the common supply in the zones extending underneath the surface of the land within the area of said oil field, including the parcel owned by each such owner by wells drilled from his surface lands into said oil zones upon the conditions and in accordance with the regulations established from time to time by the State of California.

18. That in each of said zones is a widely extended common supply of such oil and gas extending throughout the said subsurface strata or done underlying the surface lands of all owners of land, according to surface description, within the said Santa Fe Springs Oil Field. That the unreasonable waste of natural gas by any lessor, lessee or operator through a well entering any one or more said sand zones will be a continuing damage and injury to the People of the State of California and to the aforesaid right of each other lessor, lessee or operator to produce oil and gas from said zone through wells drilled within his land into said zone.

19. That natural gas from said oil and gas zones in and under the surface of the land in said Santa Fe Springs Oil [fol. 47] Field for many years last past has been and now is being brought to the surface of the earth through wells extending into said zones, and after the gasoline has been removed therefrom the said gas has been and a large part of said gas now is being used in the generation of light, heat, power and used for other industrial purposes by the People of the said State of California, in the County of Los Angeles, and particularly in the City of Los Angeles, and other cities of said state in the vicinity thereof, to which places of use in said cities and county said gas, after

being brought to the surface of the earth through wells and the gasoline removed therefrom, has been and now is conducted through pipes and distributed and sold as a public utility service. By the use of natural gas so produced, distributed and sold, many hundreds of thousands of the People of the State of California are now and have been for many years last past continuously supplied with gas for fuel, heat and other domestic purposes.

20. That the fuel supplied by the natural gas obtained from these subsurface sand zones is the cheapest and best fuel known to mankind, and the value of the natural gas deposit in said subsurface zones of Santa Fe Springs Oil Field to the State of California and to its citizens in many millions of dollars; that since the discovery and bringing under control of the gas deposits is said Santa Fe [fol. 48] Springs Oil Field large sums of money have come into the State of California, and have been invested in large manufacturing plants, and other large sums of money belonging to the People of the State of California have been invested in similar manufacturing enterprises, causing a great increase in the population of said state, and said county. That many cities in and adjacent to said Santa Fe Springs Oil Field, including the City of Los Angeles, are dependent in a large measure for fuel upon natural gas, and for that reason the People of the State of California have become and are interested in the protection and continued preservation of the natural gas supply. That many millions of dollars invested in manufacturing and the production of electric power and other properties in and near said oil field are wholly dependent for their continued preservation, and for permanent value of their property upon said natural gas supply; that their location and establishment in the vicinity was due in large measure to the presence of natural gas being available from said oil field, without which such enterprises cannot operate at a profit and in the event the supply of natural gas should be exhausted many such enterprises, in which thousands of the citizens of the State of California find employment at remunerative wages, will be compelled to stop operation.

[fol. 49] 21. That in the City of Los Angeles and other cities in the vicinity of said Santa Fe Springs Oil Field, the inhabitants have for many years used increasing quan-

tities of natural gas for fuel; that their houses have in many instances been constructed with a view to the use of such fuel and have been equipped for the use of such fuel and will have to be differently equipped before other kinds of fuel can be used, and that such use of natural gas has become and is a source of great convenience and comfort. That as relator is informed and believes in the year 1928 there was a total production of natural gas from through wells from the subsurface oil and gas zones in the State of California in excess of 316,830,147,000 cubic feet, of which there was used more than 237,000,000,000 cubic feet, and less than 238,000,000,000 cubic feet as follows:

For domestic and commercial uses	34,000,000,000
Industrial uses	42,000,000,000
Field use, shrinkage, etc.	153,000,000,000
Distribution and transmission losses	8,000,000,000
Wasted into the air	77,000,000,000

That beginning with the month of October, 1928, and continuing until the present time, the production of natural gas as aforesaid has greatly increased and is increasing more rapidly than the same is being put to beneficial use, with the result that the proportion wasted into the air has [fol. 50] greatly increased since October, 1928, and is continuing to increase.

22. That the State of California, the County of Los Angeles, the City of Los Angeles, and other public corporations and state agencies relying upon the permanent supply of natural gas, have at great expense equipped many of their public institutions, including the Court House of the County of Los Angeles, the City Hall of the City of Los Angeles, the County Hospital of the County of Los Angeles, and other institutions owned and maintained by the said State of California and its various subdivisions for the use of natural gas as a fuel by which the cost of maintaining the public buildings and institutions above mentioned has been materially lessened and the comfort of their occupants greatly increased.

23. That the wealth of the State of California, and its revenues derived from taxation on account of the increased population and the various manufacturing plants that have

been fostered and supported by natural gas, have been greatly increased, and will, in the event that the supply of natural gas is unreasonably wasted so that it is no longer available to the People of the State, be correspondingly curtailed. That if the natural gas supply in said zones of the Santa Fe Springs Oil Field is husbanded and protected it will last for many years and continue to fur- [fol. 51] nish many of the inhabitants of the State of California with fuel, and the proportionate wealth and other material interests of the State of California, and particularly the subdivisions thereof hereinbefore mentioned will continue to be benefited and enhanced and the comfort of their inhabitants greatly increased.

24. That because of the acts of the defendants above described heretofore committed, and now continuing, the property of plaintiffs and of the State of California has been and will continue to be essentially interfered with, and the comfortable enjoyment of the lives of the People of the State of California residing in the vicinity of said Santa Fe Springs Oil Field, and in the City of Los Angeles and other cities above referred to will be greatly interrupted.

25. That in addition to the value of the gas unreasonably wasted from said wells, as aforesaid, the recoverable supply of oil and gas in the zones of said Santa Fe Springs Oil Field is greatly diminished by permitting said wells to flow freely without sufficient "back pressure" at the surface. That said back pressure is necessary throughout each of the said zones in the said Santa Fe Springs Oil Field in order to retard the rapid encroachment of edge water into each said zone, and the consequent displacement of the gas therein contained.

[fol. 52] 26. That the said defendants and each of them avow their purpose and threaten to permit said gas to flow continuously and indefinitely hereafter from each of their said wells, and after removing the gasoline from said gas to permit said gas to blow, escape and waste into the open air. That said defendants refuse to make any effort to confine the said gas, and the said defendants and each of them declare their purpose and threaten to drill other wells in said Santa Fe Springs Oil Field and permit the gas from the said zones in said field to flow and escape into the

open air, and that if said gas continues to flow from said wells, as aforesaid, the supply of natural gas upon which the citizens of the State of California depend in the said cities and municipalities above referred to as aforesaid, will be greatly and continuously diminished; that the pressure of said gas as found in the said Santa Fe Springs Oil Field will be greatly diminished, and that by diminishing the pressure in any of said zones water will accumulate in said zone and ultimately entirely displace and overcome said gas supply.

27. That the pressure of said natural gas in each of said zones into which defendants' wells are drilled causes the oil and gas to flow to the surface, and that the withdrawal of gas from said zone tends to destroy the flow of the oil toward and through each and all the wells bored into said [fol. 53] sand zone. That if defendants are permitted to unreasonably waste gas from their said wells into the open air, the pressure of gas in each of said zones will be so impaired and diminished that it will no longer force oil to the surface in any of the wells drilled into said zone throughout the said Santa Fe Springs Oil Field, and that other lessors, lessees and operators, will thereby be deprived of their equal and correlative right with said defendants to produce oil and gas for beneficial purposes from each of the said zones underlying their said properties. That if the said defendants continue to unreasonably waste natural gas as aforesaid, the other lessors, lessees and operators threaten that they too, in order to avail themselves of the said oil underlying their properties, to drill open wells into the said zones in said Santa Fe Springs Oil Field and permit the natural gas therefrom to escape and waste into the open air after removing the gasoline therefrom.

28. That the greatest value can and should be derived from the said gas by first using its propulsive power in the zone sands to force the oil to, through and out of the wells, and, after removing gasoline therefrom, further utilizing the heat units in said gas for domestic and industrial purposes.

[fol. 54] 29. That by the said acts of the said defendants and the threatened acts of the defendants, irreparable

injury has and will continue to result to the plaintiffs, People of the State of California, and to their property and to the properties of the citizens of the state in the said Santa Fe Springs Oil Field, and the cities and towns in the vicinity thereof; that a multiplicity of suits will be engendered to settle the rights between numerous persons interested in the said properties in said oil field and in the acts and threatened acts of said defendants, and that the plaintiffs and other persons interested are without any adequate remedy at law, and that a writ of injunction as hereinafter prayed for is their only adequate remedy.

Wherefore plaintiffs pray judgment as follows:

1. That an order issue forthwith requiring defendants and each of them to show cause before this court why a temporary restraining order and injunction should not issue, as herein prayed for; that upon said order to show cause coming on to be heard that a restraining order and injunction issue from this court prohibiting and restraining and enjoining said defendants, and each of them, and their respective attorneys, agents, servants and employees, and all persons acting in aid of them, or any of them, from the unreasonable waste of gas and from further suffering [fol. 55] or permitting the natural gas produced from or flowing in or to said wells, or any of them, or any part of said gas to escape or waste into the air, either before or after the removal of gasoline therefrom, and that said defendants and each of them, their agents, servants and employees, and all persons acting in aid or assistance of them, or any of them, be ordered, directed and commanded forthwith to securely confine the said gas in said wells and sands, and that the defendants, failing or refusing to do so, the Sheriff of the County of Los Angeles be ordered and directed forthwith to procure the necessary materials and labor, and under the direction of the State Oil and Gas Supervisor of the State of California, cause said wells to be shut in and the unreasonable waste of said gas prevented by causing said gas flow in or to or from said wells to be confined in the manner and by the means and to the extent that the said Oil and Gas Supervisor shall direct, so that not more than 2500 cubic feet of gas is produced to each barrel of oil, and that the expense of so doing

be taxed against the defendants respectively as a part of the cost of this suit;

2. Plaintiffs further pray that from time to time, on proper notice and showing, further orders to show cause, restraining orders and injunctions may issue during the pendency of this action;

[fol. 56] 3. Plaintiffs further pray that upon the final hearing of this cause said preliminary injunction be made permanent and said defendants and each of them, their respective attorneys, officers, agents, servants and employees, and all persons acting in aid or assistance of them, or any of them, be perpetually enjoined and prohibited from permitting an unreasonable waste of gas and from further suffering gas from said wells, or any of them, or any other wells drilled or operated by them or any of them in said Santa Fe Springs Oil Field, to escape into the air, either before or after removing the gasoline therefrom, and that defendants be forever commanded to confine said natural gas safely and securely, in said wells or as required for use without waste, in pipes, tanks and other proper receptacles, and not to permit any of said gas to escape or waste into the open air, either before or after the removal of gasoline therefrom; and

4. That the plaintiffs have such other and further relief as may be meet and proper in the premises, and recover their costs of suit herein.

James S. Bennett, Attorney for Plaintiffs, 837 Van Nuys Building, Los Angeles, California.

[fol. 57] State of California,
County of Sacramento, ss:

Fred G. Stevenot, being by me first duly sworn, deposes and says: That he is the Director of Natural Resources of the State of California, named as relator in the above entitled complaint and bringing the above entitled action for the People of the State of California, Plaintiffs; that he has read the foregoing complaint and knows the contents thereof; and that the same is true of his own knowledge except as to the matters which are therein stated upon his information or belief, and as to those matters that he believes it to be true. That affiant makes this verification as

said Director of Natural Resources of the State of California for and on behalf of plaintiffs, People of the State of California.

Fred G. Stevenot.

Subscribed and sworn to before me this 10th day of Sept., 1929. F. G. Griebnow, Jr., Notary Public in and for the County of Sacramento, State of California. My commission expires 1/19/33. (Seal.)

7292

BANDINI PETROLEUM CO.

v.

SUPERIOR COURT

RESPONDENTS' EXHIBIT A

Dist. Court of Appeal, Second Dist. Filed Apr. 21, 1930. H. C. Lillie, Clerk. C. L. King, Deputy Clerk.

(Here follows Exhibit A, side folio 57a)

EXHIBIT A-A TO COMPLAINT—TABLES

Filed September 11, 1929. L. E. Lampton, county clerk; by W. D. Buckey, deputy.

(Here follows Exhibit AA, side folio 57b and 57c)

FOLD-OUT IS TOO LARGE TO BE FILMED

Defendant Company	Lease Name	Well No.	Zone	Location & Descriptio
Star Petroleum Co.	Star	No. 2	Nordstrom	45′ N. from C-L of Gardner Avenue &
The Texas Co.	Baldwin	No. 4	O'Connell	100′ N. & 125 E. from S. W. corner o
" "	Batson	No. 5	O'Connell	160′ N. & 173.44′ E. from C-L Norwa
" "	Foix	No. 4	O'Connell	150′ N. & 111.87′ E. from C-L Willis
" "	"	No. 6	O'Connell	170′ N. & 182.5′ E. from C-L Spring
" "	Matern No. 3	No. 11	O'Connell	168′ N. & 84.42′ W. from C-L Park
" "	Mutual	No. 2	O'Connell	57′ S. & 145′ W. from C-L Butler Ro
" "	Standlee	No. 4	O'Connell	115.5′ N. & 120′ W. from S. E. corn
" "	Steinly	No. 4	O'Connell	50′ S. & 63′ W. from C-L of Spring
" "	"	No. 6	Lower Clarke	115′ N. & 176′ E. from S. W. corner
" "	Weaver	No. 4	O'Connell	50′ N. & 291′ W. from C-L of Park
" "	"	No. 5	O'Connell	70′ S. & 363′ W. from C-L Spring S
" "	"	No. 7	O'Connell	70′ S. & 113′ E. from C-L Spring Stre
Twin Bell Oil Syndicate	Wickman	No. 3	O'Connell	200′ S. & 150′ E. from C-L of Centra
Union Oil Company of California	Grohs	All Wells		
" " "	Alexander	No. 2	Bell	1180′ S. & 1500′ W. of N. E. corner o
" " "	"	No. 16	O'Connell	770′ N. & 1020′ E. of C-L Norwalk
" " "	Bell	No. 21	Meyer	662.5′ N. & 1780′ W. from S. E. co
" " "	"	No. 23	Meyer	905.1′ S. & 344′ W. from N. E. corn
" " "	"	No. 31	Nordstrom	430′ N. & 1090′ W. from C-L Telegr
" " "	"	No. 33	Nordstrom	145′ N. & 571.05′ W. from C-L Teleg
" " "	Bell-"A"	No. 30	O'Connell	430′ S. & 165′ E. from C-L Telegrap
" " "	Farwell	No. 9	Meyer	509.5′ N. & 380′ E. from S. W. corn
" " "	"	No. 13	O'Connell	500′ N. & 280′ E. from C-L Central
" " "	"	No. 14	O'Connell	910′ N. of C-L of Telegraph Road &
" " "	Howard	No. 10	O'Connell	550′ N. of S. line Sec. 31 & 150′ E.
" " "	"	No. 11	O'Connell	150′ N. of S. line Sec. 31 & 460′ E. fr
" " "	"	No. 12	O'Connell	600′ N. of S. line Sec. 31 & 200′ W.
Dry gas, in addition to the above & belonging to the Union Oil Company of California, blow				
				Union Oil Co. of Calif—Bell Ab
				Industrial Fuel Supply Co.—Plan
Universal Consolidated Oil Co.	Blanchard	All Wells		
" "	O'Connell	All Wells		
Wilshire Oil Co.	Cecelia	No. 1-B	O'Connell	60′ N. & 25′ W. from S. E. corner of
	Baker	No. 6	Lower Clarke	51′ S. & 408′ W. of C-L of Butler Ro
	Peterson	No. 2-A	O'Connell	111′ N. & 59′ E. from intersections o
Wilshire Annex Oil Co.	Eagle	"Annex Eagle"		
		No. 1	O'Connell	21′ S. & 230′ W. of N. E. corner of
York & Smullen	Wickman	No. 5	O'Connell	75′ S. & 50′ W. from N. E. corner o

Location & Description in Santa Fe Springs Oil Field.		Gas Blown to the Air in M. C. F. Per Day.
rom C-L of Gardner Avenue & 125 E. from S. W. corner stake	(Sec. 6, T. 3 S., R. 11 W.)	1500
& 125 E. from S. W. corner of Baldwin Lease	(Sec. 6, T. 3 S., R. 11 W.)	8000
& 173.44′ E. from C-L Norwalk Road & Telegraph Road	(Sec. 6, T. 3 S., R. 11 W.)	6500
& 111.87′ E. from C-L Willis Avenue & Telegraph Road	(Sec. 6, T. 3 S., R. 11 W.)	10000
& 182.5′ E. from C-L Spring Street & Telegraph Road	(Sec. 6, T. 3 S., R. 11 W.)	
& 84.42′ W. from C-L Park Avenue & Norwalk Road	(Sec. 6, T. 3 S., R. 11 W.)	5000
145′ W. from C-L Butler Road & Curtis Avenue	(Sec. 6, T. 3 S., R. 11 W.)	650
. & 120′ W. from S. E. corner of Standlee Lease	(Sec. 6, T. 3 S., R. 11 W.)	11000
63′ W. from C-L of Spring Street & Clark Avenue	(Sec. 6, T. 3 S., R. 11 W.)	5000
& 176′ E. from S. W. corner of Steinly Lease	(Sec. 6, T. 3 S., R. 11 W.)	5000
291′ W. from C-L of Park Avenue & Spring Street	(Sec. 6, T. 3 S., R. 11 W.)	4000
363′ W. from C-L Spring Street & Telegraph Road	(Sec. 6, T. 3 S., R. 11 W.)	4000
113′ E. from C-L Spring Street & Telegraph Road	(Sec. 6, T. 3 S., R. 11 W.)	4000
& 150′ E. from C-L of Central Avenue & Telegraph Road	(Sec. 5, T. 3 S., R. 11 W.)	4000
	(Sec. 6, T. 3 S., R. 11 W.)	5000
& 1500′ W. of N. E. corner of Sec. 31	(Sec. 6, T. 3 S., R. 11 W.)	1500
& 1020′ E. of C-L Norwalk Road & Telegraph Road	(Sec. 6, T. 3 S., R. 11 W.)	1800
. & 1780′ W. from S. E. corner of Sec. 31	(Sec. 31, T. 2 S., R. 11 W.)	900
& 344′ W. from N. E. corner of Sec. 6	(Sec. 6, T. 3 S., R. 11 W.)	1100
& 1090′ W. from C-L Telegraph Road & Butler Road	(Sec. 6, T. 3 S., R. 11 W.)	4500
& 571.05′ W. from C-L Telegraph Road & Butler Road	(Sec. 6, T. 3 S., R. 11 W.)	2600
& 165′ E. from C-L Telegraph Road & Norwalk Road	(Sec. 6, T. 3 S., R. 11 W.)	2800
& 380′ E from S. W. corner of Sec. 32	(Sec. 32, T. 2 S., R. 11 W.)	1000
& 280′ E. rrom C-L Central & Telegraph Road	(Sec. 5, T. 3 S., R. 11 W.)	1300
of C-L of Telegraph Road & 200′ E. from C-L of Romandel	(Sec. 5, T. 3. S., R. 11 W.)	
of S. line Sec. 31 & 150′ E. from C-L Norwalk Road	(Sec. 31, T. 2 S., R. 11 W.)	
of S. line Sec. 31 & 460′ E. from C-L Norwalk Road	(Sec. 31, T. 2 S., R. 11 W.)	22000
of S. line Sec. 31 & 200′ W. of E. property line	(Sec. 31, T. 2 S., R. 11 W.)	
Company of California, blown to the air at:		
on Oil Co. of Calif—Bell Absorption Plant		90000
ustrial Fuel Supply Co.—Plant No. 4		14000
	(Sec. 6, T. 3 S., R. 11 W.)	14000
	(Sec. 5, T. 3 S., R. 11 W.)	
25′ W. from S. E. corner of Block 83	(Sec. 6, T. 3 S., R. 11 W.)	1000
408′ W. of C-L of Butler Road & Little Lake Road	(Sec. 6, T. 3 S., R. 11 W.)	1000
.59′ E. from intersections of C-Ls of Gardner & Willis Street	(Sec. 6, T. 3 S., R. 11 W.)	1000
230′ W. of N. E. corner of Block 83	(Sec. 6, T. 3 S., R. 11 W.)	2000
50′ W. from N. E. corner of Wickman Lease	(Sec. 5, T. 3 S., R. 11 W.)	8000

[fol. 58] EXHIBIT 2 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

Order to Show Cause

The above named plaintiffs, People of the State of California, by Fred G. Stevenot, Director of Natural Resources of the State of California, having filed their verified complaint in the Superior Court of the State of California, in and for the County of Los Angeles, against the defendants in said complaint and hereinafter named, praying for an order to show cause why preliminary injunction should not issue and a preliminary injunction be issued against the above named defendants, and each of them, their respective attorneys, agents, servants and employees and all persons acting in aid or in conjunction with said defendants, or any of them, requiring them to refrain from certain acts set forth in said complaint and hereinafter more particularly mentioned; and

The Court having read the verified complaint herein and it satisfactorily appearing to the court therefrom that good [fol. 59] cause exists in the matter requiring cause to be shown why a preliminary injunction should not be granted restraining and prohibiting the said defendants and each of them, their respective attorneys, agents, servants and employees, and all other persons acting in aid or in assistance of said defendants or any of them as prayed for by said complaint;

It Is Therefore Ordered, Adjudged and Decreed that defendants Associated Oil Company, General Petroleum Corporation of California, Richfield Oil Company of California, Standard Oil Company of California, The Texas Com-

pany, Shell Oil Company, Union Oil Company of California, Industrial Fuel Supply Company, Rio Grande Gasoline Company, Standard Gasoline Company. The Norwalk Company, Ambassador Petroleum Co., Bandini Petroleum Company, Bell View Oil Syn., Buckeye Union Oil Company, Commodore Petroleum Company, Cooperative Oil Syndicate of Santa Fe Springs, Tom Donley Land & Oil Company, Elliott Consolidated Oil Company, Graham-Loftus Oil Corp., Oscar R. Howard, Jameson Petroleum Company, C. C. Julian, Raleigh Oil Company, Reed & Berliner, Inc., George W. Ring, Rio Grande Oil Company, Second Twin Bell Syn., The St. Helens Petroleum Co., Ltd., Star Petroleum Company, Sunset Pacific Oil Company, Superior Oil Company, Syndicate Company, Twin Bell Oil Syn., United [fol. 60] States Oil and Royalties Company, Universal Consolidated Oil Company, Whiston & Cox Oil Company, Whittier Santa Fe Springs Oil Syn. No. 1, George F. Getty, Inc., Wilshire Annex Oil Co., Wilshire Oil Co., Inc., H. A. Bardeen, K. G. Pulliam, John Doe York, Richard Roe Smullin, John Doe I, John Doe II, John Doe III, Mohawk Petroleum Company, Richard Roe One Company, Richard Roe Two Company, Richard Roe Three Company, and each of you, be and appear before this court, at the courtroom of Department 8 thereof in the Courthouse of the County of Los Angeles at the City of Los Anegeles, State of California on the 20th day of September, 1929, at 10:00 o'clock in the forenoon, then and there to show cause why a preliminary injunction should not be granted as prayed for in said complaint enjoining and restraining you and each of you, your respective attorneys, agents, servants and employees, and all persons acting in aid of you or any of you during the pendency of this action from the unreasonable waste of natural gas and from further suffering or permitting the natural gas produced from or flowing in or to oil wells, or any oil well in Santa Fe Springs Oil Field or any part of said gas to escape or waste into the air, either before or after the removal of gasoline therefrom, and that said defendants and each of them, their agents, servants and employees, and all persons acting in aid or [fol. 61] assistance of them, or any of them, be ordered, directed and commanded forthwith to securely confine the said gas in said wells and sands of said Santa Fe Springs Oil Field, and that the defendants, failing or refusing to

do so, the Sheriff of the County of Los Angeles be ordered and directed forthwith to procure the necessary materials and labor, and under the direction of the State Oil and Gas Supervisor of the State of California, cause said wells to be shut in and the unreasonable waste of said gas prevented by causing said gas flowing in or to or from said wells and each of them to be confined in the manner and by the means and to the extent that the said Oil and Gas Supervisor shall direct, so that not more than 2500 cubic feet of gas is produced to each barrel of oil from any well, and that the expense of so doing be taxed against defendants respectively as a part of the cost of this suit.

That Santa Fe Springs Oil Field as herein referred to is that portion of the Rancho Santa Gertrudes, in the County of Los Angeles, and in Oil and Gas District No. 1, State of California, more particularly described as follows:

The Southeast quarter of Section 36, Township 2 South, Range 12 West, and the East half of Section 1, Township 3 South, Range 12 West, and the South half of Section 31, Township 2 South, Range 11 West, and all of Section [fol. 62] 5 and all of Section 6, and the North half of Section 7 of Township 3 South, Range 11 West.

That the time for the service of this order to show cause is hereby shortened and may be served at any time prior to 7:00 o'clock p. m. on Monday, September 16th, 1929.

Done in open court this 11th day of September, 1929.

Elliott Craig, Judge of the Superior Court of the State of California in and for the County of Los Angeles.

[fol. 63] EXHIBIT 3 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

Affidavit of Reed D. Bush

STATE OF CALIFORNIA,
City and County of San Francisco, ss:

I, Reed D. Bush, being first duly sworn, depose and say:

That I was born on March 5, 1884; that I attended the University of California, Berkeley, California, 1903-06 and 1907-09, in the College of Civil Engineering. A course in geology was included among other subjects.

That from 1909 to 1915 I was resident geologist and petroleum engineer of Southern Pacific Company, Fuel Oil Department (afterwards Pacific Oil Company); that I was Assistant Manager of Federal Drilling Company 1915-1916; that I was petroleum engineer and Deputy Supervisor, California State Mining Bureau at Coalinga, Fresno County, and at Taft, Kern County, in the Sunset-Midway oil fields from 1916 to 1920; that I was superintendent of production [fol. 64] for Kansas, of Empire Gas and Fuel Company, 1920 to 1923; that I was State Oil and Gas Supervisor of California, 1923 to date. That I am a member of the American Institute of Mining and Metallurgical Engineers and a member of the President's Naval Oil Reserve Commission.

That I am familiar with the lands embraced in the Santa Fe Springs oil field in the County of Los Angeles, State of California, and with the production of oil and gas from the wells in said field, and with the amounts of gas being wasted in said field, by reason of having supervision of oil field operations in the work of the State Department of Natural Resources, Division of Oil and Gas. That I am

familiar with similar conditions existing in other oil fields of California, both in the production of oil and gas and waste of gas in connection with the work of supervision of operations by the said Division of Oil and Gas.

That the conditions hereinafter mentioned as existing in Santa Fe Springs oil field in the County of Los Angeles, said state, are prevalent in the other oil fields in the other oil and gas districts, and the use of natural gas as herein mentioned is prevalent over a large portion of the State of California.

That Santa Fe Springs oil field as herein referred to is that portion of the Rancho Santa Gertrudes, in the County [fol. 65] of Los Angeles, and in Oil and Gas District No. 1, State of California, more particularly described as follows:

The Southeast quarter of Section 36, Township 2 South, Range 12 West, and the East half of Section 1, Township 3 South, Range 12 West, and the South half of Section 31, Township 2 South, Range 11 West, and all of Section 5 and all of Section 6, and the North Half of Section 7 of Township 3 South, Range 11 West.

That the axes of said oil field intersect near the southeast corner of Fulton Road and Willis Street, within the boundaries of said oil field, all of which is shown on map Exhibit "A" attached to and made a part of the complaint filed herein.

That underlying the surface of the land at various depths and within the said Santa Fe Springs oil field as above described, are twelve (12) separate oil and gas zones, some of which extend throughout the whole of said oil field area, and some of which zones extend only throughout a portion of said oil field area, and one or more oil and gas zones extend in and under all of said oil field area. That the oil and gas zone commonly known as and hereinafter referred to as Meyer Zone, and the oil and gas zone commonly known as and hereinafter referred to as Upper Clark Zone, and [fol. 66] the oil and gas zone commonly known as and hereinafter referred to as Lower Clark Zone, and the oil and gas zone commonly known as the Hathaway Zone, extend under the whole of the area of said oil field, but at varying depths and with varying thickness and content of oil and gas in the different parts of said oil field. That each of the other zones herein mentioned likewise extends under the lands of many separate owners in said oil field.

That said oil and gas zones in and under the said Santa Fe Springs oil field are commonly known as and are referred to herein as:

(a) Foix Zone.
(b) Bell Zone.
(c) Meyer Zone.
(d) Upper Nordstrom Zone.
(e) Lower Nordstrom Zone.
(f) Upper Buckbee Zone.
(g) Lower Buckbee Zone.
(h) Upper O'Connell Zone.
(i) Lower O'Connell Zone.
(j) Upper Clark Zone.
(k) Lower Clark Zone.
(l) Hathaway Zone or Third Clark Zone.

That each of said zones is separated from the adjoining zones by impervious strata substantially parallel thereto, and frequently by strata of sand containing water, the end [fol. 67] planes of said zones in many places being closed by strata containing water excluded from the oil and gas zone by the gas pressure therein. That each of said zones is of varying depth, and, so far as known, each of said zones has its greatest thickness in the vicinity of the intersection of the axes of the said oil field above described. That the uper plane of each of said zones nearest the surface, and from which the plane nearest the surface curves downward at an angle of approximately five degrees from the horizontal line, are defined and located substantially as follows:

(a) Foix Zone,	3450	feet	below	sea	level.
(b) Bell Zone,	3650	"	"	"	"
(c) Meyer Zone,	4100	"	"	"	"
(d) Upper Nordstrom Zone,	4900	"	"	"	"
(e) Lower Nordstrom Zone,	5250	"	"	"	"
(f) Upper Buckbee Zone,	5700	"	"	"	"
(g) Lower Buckbee Zone,	5800	"	"	"	"
(h) Upper O'Connell Zone,	6200	"	"	"	"
(i) Lower O'Connell Zone,	6400	"	"	"	"
(j) Upper Clark Zone,	6600	"	"	"	"
(k) Lower Clark Zone,	7200	"	"	"	"
(l) Hathaway Zone,	8000	"	"	"	"

That each of said zones in and under said oil field is filled with sand containing oil and gas under pressure in such manner that a portion of the oil is in the form of gasoline vapor, a portion of the gas is dissolved in the oil, a portion of the gas exists as a liquid which becomes a gas when the [fol. 68] pressure is sufficiently lowered, a portion of the gas adheres to the surface or interfaces between the gases and liquids, and a portion exists as free gas. That when a well penetrates one of these zones, the gas pressure is released about the well, causing oil and gas to begin to flow through the zone, toward the point of lower pressure at the well, and as the fluid flows toward the well there is a drop in the pressure throughout the zone. That the opening of a well into any zone disturbs the pressure of gas in all parts of the zone, and the gas produced or allowed to escape from one well is replaced by gas and oil moved and drawn from all parts of the zone by the expansion of gas, as aforesaid. That gas underlying any given surface area is not fixed in place but is volatile and moves from place to place within the interstices of the zone sand as the pressure is relieved. That with the increase in the flow of gas through and out of any well or wells penetrating any zone of said oil field above a ratio of 2500 cubic feet of gas to a barrel of oil, the proportionate recovery of the oil in the sand of such zone is reduced. That the extent to which the ultimate recovery of oil in the sand is reduced varies with the increase in the ratio of flow of gas per barrel of oil. That the ultimate loss of oil recovery from a zone is greatly increased by a corre- [fol. 69] sponding increase in the ratio of gas discharge from the wells penetrating said zone.

That each and every withdrawal of gas by one operator through a well entering the sand of any one of said zones reduces the supply available to each other such operator of a well into said zone, and increases the difficulty of each operator in obtaining oil and gas through each other well drilled into the said zone from the surface of the land, and that each and every such withdrawal of gas does and will reduce the gas pressure in the said zones and throughout the whole of said zone as it extends in, under and through said Santa Fe Springs oil field. That the waste of gas through any well entering the sand in any zone will be a continuing damage and injury to the People of the State of California

and to each operator having the right to penetrate said zone and withdraw oil and gas or gas from said zone.

That in the sands of the Lower Buckbee Zone, the Upper O'Connell Zone, the Lower O'Connell Zone, the Upper Clark Zone, the Lower Clark Zone and the Hathaway Zone are large quantities of natural gas under high pressure, which gas in each zone moves the oil to the wells penetrating such zone, and causes the oil and gas to discharge with great force at the surface through and out of the wells from the sands in the said zone.

Reed D. Bush.

[fol. 70] Subscribed and sworn to before me, a notary public in and for the City and County of San Francisco, State of California, this 7th day of September, 1929. Anne F. Hasty, Notary Public in and for the City and County of San Francisco, State of California. My commission expires September 20, 1931. 101 Market St., San Francisco, Cal. (Seal.)

[fol. 71] EXHIBIT 4 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

Affidavit of Emile Huguenin

Emile Huguenin, being first duly sworn, deposes and says:

That he is a graduate of the University of California, College of Mines, 1909; that he is now and has been Deputy State Oil and Gas Supervisor since March, 1923, in charge of District 2 (Ventura County) March, 1923, to April, 1924,

District 4 (Kern County), May, 1924, to July 1925, District 1 (Los Angeles and Orange Counties), August, 1925, to date; that he has supervised drilling operations at Santa Fe Springs since August, 1925, and more particularly since the discovery of the Buckbee Zone in July, 1928, and in connection with this supervision has become and is familiar with the development and conditions of each of the deep zones at Santa Fe Springs Oil Field.

That Santa Fe Springs Oil Field as herein referred to is that portion of the Rancho Santa Gertrudes, in the [fol. 72] County of Los Angeles, and in Oil and Gas District No. 1, State of California, more particularly described as follows:

The Southeast quarter of Section 36, Township 2 South, Range 12 West, and the East half of Section 1, Township 3 South, Range 12 West, and the South half of Section 31, Township 2 South, Range 11 West, and all of Section 5 and all of Section 6, and the north half of Section 7 of Township 3 South, Range 11 West.

That the lines of cross section to mark intersecting vertical planes in the field best disclosing underground conditions in the different zones intersect near the southeast corner within the boundaries of said oil field, all of which is shown on map Exhibit "A" attached to and made a part of the complaint filed herein.

That underlying the surface of the land at various depths and within the said Santa Fe Springs Oil Field as above described, are twelve (12) separate oil and gas zones, some of which extend throughout the whole of said oil field area, and some of which zones extend only throughout a portion of said oil field area, and one or more oil and gas zones extend in and under all of said oil field area. That the oil and gas zone commonly known as and hereinafter referred to as Meyer Zone, and the oil and gas zone commonly known as and hereinafter referred to as Upper [fol. 73] Clark Zone, and the oil and gas zone commonly known as and hereinafter referred to as Lower Clark Zone or Second Clarke Zone, and the oil and gas zone commonly known as the Hathaway Zone and sometimes as Third Clark Zone, extend under the whole of the area of said oil field, but at varying depths and with varying thickness and content of oil and gas in the different parts of said oil field. That each of the other zones herein mentioned likewise

extends under the lands of many separate owners in said oil field.

That said oil and gas zones in and under the said Santa Fe Springs Oil Field are commonly known as and are referred to herein as:

(a) Foix Zone.
(b) Bell Zone.
(c) Meyer Zone.
(d) Upper Nordstrom Zone.
(e) Lower Nordstrom Zone.
(f) Upper Buckbee Zone.
(g) Lower Buckbee Zone.
(h) Upper O'Connell Zone.
(i) Lower O'Connell Zone.
(j) Upper Clark Zone.
(k) Lower Clark Zone or Second Clarke Zone.
(l) Hathaway Zone or Third Clark Zone.

That each of said zones is separated from the adjoining zones by impervious strata substantially parallel thereto, [fol. 74] and frequently by strata of sand containing water, the end planes of said zones in many places being closed by strata containing water excluded from the oil and gas zone by the gas pressure therein. That each of said zones is of varying depth, and, so far as known, each of said zones has its greatest thickness in the vicinity of the intersection of the axes of the said oil field above described. That the upper plane of each of said zones nearest the surface, and from which the plane nearest the surface curves downward at an angle of approximately five degrees from the horizontal line, are defined and located substantially as follows:

[fol. 75]

(a) Foix Zone,	3450	feet	below	the	surface	of	the	land.
(b) Bell Zone,	3650	"	"	"	"	"	"	"
(c) Meyer Zone,	4050	"	"	"	"	"	"	"
(d) Upper Nordstrom Zone,	4900	"	"	"	"	"	"	"
(e) Lower Nordstrom Zone,	5250	"	"	"	"	"	"	"
(f) Upper Buckbee Zone,	5550	"	"	"	"	"	"	"
(g) Lower Buckbee Zone,	5750	"	"	"	"	"	"	"
(h) Upper O'Connell Zone,	6200	"	"	"	"	"	"	"
(i) Lower O'Connell Zone,	3400	"	"	"	"	"	"	"
(j) Upper Clark Zone,	6600	"	"	"	"	"	"	"
(k) Lower Clark Zone,	7200	"	"	"	"	"	"	"
(l) Hathaway Zone,	8000	"	"	"	"	"	"	"

[fol. 76] That the surface of the land is 150 feet more or less above sea level.

That the said area of land within said Santa Fe Springs Oil Field is divided into not less than 1145 parcels at the surface; that said parcels are owned of record by more than 110 individual and corporation owners; that many of said parcels are rectangles less than 75 by 100 feet, and that more than 41 operators have wells from the surface into one or more of the said zones above referred to. That two operators have wells from the surface into said Foix Zone; that 9 operators have wells from the surface into said Bell Zone; that 24 operators have wells from the surface into said Meyer Zone; that 7 operators have wells from the surface into said Upper Nordstrom Zone; that 5 operators have wells from the surface into said Lower Nordstrom Zone; that 14 operators have wells from the surface into said Upper Buckbee Zone; that 11 operators have wells from the surface into said Lower Buckbee Zone; that 23 operators have wells from the surface into the Upper O'Connell Zone; that 19 operators have wells from the surface into the Lower O'Connell Zone; that 14 operators have wells from the surface into the Upper Clark Zone; that 4 operators have wells from the surface into the Lower or Second Clark Zone; that 8 operators have wells from the [fol. 77] surface into said Hathaway or Third Clark Zone. That attached to the complaint is map marked Exhibit "A" hereby made a part of this affidavit and on said Exhibit "A" is located each of said parcels and each of said wells. That in the sands of the Lower Buckbee Zone, the Upper O'Connell Zone, the Lower O'Connell Zone, the Upper Clark Zone, the Lower or Second Clark Zone and the Hathaway or Third Clarke Zone are large quantities of natural gas under high pressure, which gas causes the oil and gas to discharge with great force at the surface through and out of the wells from the sands in the said zone.

That there is now being wasted, blown, released and allowed to escape into the air by the acts, omissions, sufferance or insistence of the defendants an aggregate of more than four hundred million cubic feet of natural gas (after the removal of the gasoline therefrom) each day of twenty-four hours from the said subsurface zones of the Santa Fe Springs Oil Field herein referred to, which discharge of natural gas has continued for more than thirty days next

last past. That attached to the complaint herein and marked Exhibit "AA" is a list of the several wells from which the gas is being so blown, released and allowed to escape into the air, together with a description of their respective locations, and a statement of the approximate amount of gas blown from each of the wells under each lease and from each Zone during each twenty-four hours, together with a list of the names of the defendant operators of each such well, and the name of the defendant in charge [fol. 78] of the blowing into the air of natural gas from each of said wells.

That the gas so being blown, released and allowed to escape into the atmosphere can be saved and conserved by defendant operators in said Santa Fe Springs Oil Field by confining said gas in the Zones of said field.

That a cubic foot of gas as referred to in this affidavit is measured at a temperature of 60° F. and a pressure of 14.733 pounds per square inch, and a barrel of oil as referred to herein contains 42 liquid gallons.

That in addition to the value of the gas unreasonably wasted from said wells, as aforesaid, the recoverable supply of oil and gas in the zones of said Santa Fe Springs Oil Field is greatly diminished by permitting said wells to flow freely without sufficient "back pressure" at the surface. That said back pressure is necessary throughout each of the said zones in the said Santa Fe Springs Oil Field in order to retard the rapid encroachment of edge water into each said zone, and the consequent displacement of the gas therein contained.

Emile Huguenin.

Subscribed and sworn to before me this 11th day of September, 1929. Theda S. Bradley, Notary Public in and for the County of Los Angeles, State of California. (Seal.)

[fol. 79] EXHIBIT 5 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

THE PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY et al., Defendants.

Affidavit of E. G. Gaylord

STATE OF CALIFORNIA,
City of San Francisco,
County of San Francisco, ss:

E. G. Gaylord, being first duly sworn, deposes and says that:

He graduated from the College of Mining of the University of California, in 1911.

That for the ten years following he was in the employ of the various oil subsidiaries of the Southern Pacific Company as Geologist and Petroleum Engineer.

From 1921 to 1926 he was Geologist and later Assistant Manager of Development for the Pacific Oil Company.

Since April, 1926, he has been Chief Petroleum Engineer of the Standard Oil Company of California, and because of his education and experience he is thoroughly familiar with the behavior of producing wells and with the [fol. 80] present knowledge regarding the function of gas in the recovery of oil from oil wells.

That in his present position he has charge of all the Petroleum Engineering work of the Company which includes technical supervision over the drilling, completion and operation of oil wells in the Santa Fe Springs Field, and that he is therefore entirely familiar with the development of that field and with the present producing conditions from the several zones in that field.

The flow of oil through an oil zone well is caused chiefly by natural gas which seeks the well as a point of diminishing pressure. The ultimate recovery of oil from oil sand depends largely upon the quantity of gas available in the sand for carrying oil to the wells. The ratio of the original quantity of gas to the oil in different oil and gas sands varies greatly, but because of the important part played by natural gas in the recovery of oil, the conservation of natural gas is of the utmost importance to every oil operator and to the community dependent upon a continued supply of oil or gas or both.

In two adjacent wells producing from the same zone the quantity of gas produced per barrel is to a large extent a measure of the relative efficiency in oil recovery of these two wells. If one of these wells produces a barrel of oil with five hundred (500) cubic feet of natural gas and the [fol. 81] other a barrel of oil with one thousand (1,000) cubic feet of gas, the first well is believed to be much more efficient than the second well, and while it cannot be assumed in the light of present information that a well will ultimately produce twice as much oil if it can be controlled to produce at the rate of five hundred (500) cubic feet instead of one thousand (1,000) cubic feet of gas per barrel of oil, nevertheless it can be stated that the ultimate production of a well will be greatly increased if the quantity of gas discharged from the well can be delayed.

Before an oil field is tapped by the first well, it is probable that the gas pressure in the sand of a well-defined zone is uniform throughout the productive limits of the zone. As producing wells are completed the gas pressure in the zone is lowered, but because of the resistance offered to the passage of oil and gas through the pores of the oil sand the lowering of the pressure does not take place uniformly throughout the zone. Each well is a point of low pressure as compared to the oil and gas sands in the zone some distance from that well, and the greater the differential pressure in favor of the well, the greater the flow of gas toward the well. Back pressure in the well will usually increase the ultimate recovery of oil and reduce the daily production.

In the Santa Fe Springs Field there are recognized at least eight separate and distinct oil and gas zones. Gen-

[fol. 82] erally, each of these zones must be produced separately by wells drilled to that zone alone. These zones differ in the original ratio of their gas and oil content but the general statement as to efficiency of production made above holds for each of these separate zones. It is the commonly accepted belief that each of said zones in and under said oil field is filled with sand containing oil and gas under pressure in such manner that a portion of the oil is in the form of gasoline vapor, a portion of the gas is dissolved in the oil, a portion of the gas exists as a liquid which becomes a gas when the pressure is sufficiently lowered, a portion of the gas adheres or interfaces between the gases and liquids, and a portion exists as free gas. That the gas dissolved in the oil makes the oil more fluid and more capable of movement through the porous spaces of the zone to the wells drilled from the surface of the ground. That the oil rendered more fluid by the gas dissolved in the oil and by the liquid gas in contact with the oil passes into the intricate interstices of the zone sand and finds its way to the area of lower pressure at the well, and the free gas in the zone forces the combined oil and gas into, through and out of the well. That when a well penetrates one of these zones, the gas pressure is released about the well causing oil and gas to begin to flow through the zone toward the [fol. 83] point of lower presure at the well, and as the fluid flows toward the well there is a drop in the pressure throughout the zone. That with this drop in pressure the free gas expands and drives the oil through the zone sand, and the progressive liberation of energy increases the velocity of the fluids and overcomes friction as they move through the zone sand toward the opening made by the well. That the opening of a well into any zone disturbs the pressure of gas in all parts of the zone, and the gas produced or allowed to escape from the well is replaced by gas and oil moved and drawn as aforesaid by the expansion of gas, as aforesaid, throughout all parts of the zone. That gas underlying any given surface area is not fixed in place but is mobile and moves from place to place within the interstices of the zone sand as the pressure is relieved.

That in any well penetrating a zone an optimum, most efficient, gas-oil ratio can be determined by varying the operating conditions of the well, and with the increase in the

flow of gas through and out of said well beyond this optimum condition the proportionate recovery of the oil in the sand of such zone is reduced, the extent to which the ultimate recovery of oil in the sand is reduced varies with the increase in the rate of flow of gas, so that in some cases the ultimate loss of oil recovery from a zone is double what the [fol. 84] loss of oil would be were a lower ratio of gas discharge maintained from the wells penetrating said zone.

That each and every withdrawal of more gas than is dissolved in the oil by one of such operators through a well entering the sand of any one of said zones reduces the supply available to each other such operator of a well into said zone and increases the difficulty of each operator in obtaining oil and gas through a well drilled into the said zone from the surface of the land owned by him or through which he has a right to produce oil and gas. That each and every such withdrawal of gas does and will reduce the gas pressure in the said zone sand throughout the whole of said zone as it extends in, under and through said Santa Fe Springs Field. That the unreasonable waste of gas through any well entering the sand in any zone will be a continuing damage and injury to the People of the State of California and to the rights of each operator having the right to penetrate said zone and withdraw oil and gas from said zone. That as your relator is informed and believes the gas pressure has been so depleted and dissipated in the Foix Zone, the Bell Zone and the Meyer Zone that oil is produced from each of said zones only by pumping, resulting in increased costs to the operators of the wells producing oil from each of said three zones. That in the sands of each of the other of said [fol. 85] zones, and particularly in the Lower Buckbee Zone, the Upper Clark Zone, the Lower Clark Zone and the Hathaway Zone are large quantities of natural gas under high pressure, which gas moves the oils to the wells penetrating each of said zones, respectively, and causes the oil and gas to discharge with great force at the surface through and out of the wells from the sands in the said zones.

In so far as efficient production of oil is concerned, the restriction of the production of said natural gas from any well to the above mentioned optimum proportion or gas-oil ratio will avoid an unreasonable waste of natural gas in the said Santa Fe Springs Oil Field.

E. G. Gaylord.

Subscribed and sworn to before me this 5th day of September, 1929. Frank L. Owen, Notary Public in and for the City and County of San Francisco, State of California. (Seal.)

[fol. 86] EXHIBIT 6 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

THE PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

AFFIDAVIT OF CLAUDE C. BROWN

STATE OF CALIFORNIA,
County of Los Angeles, ss:

Claude C. Brown, being first duly sworn, deposes and says: That he graduated from the University of California in 1914 with the degree of Bachelor of Science in Engineering; that he has since been employed at various times and places and by firms and companies as follows:

J. G. White Engineering Corporation, New York;
Pacific Gas & Electric Co., San Francisco;
Northern California Power Co., Shasta County;
Southern California Edison Co., Kern County;
Pacific Light & Power Co., Los Angeles;
Southern Pacific Co., San Francisco and Los Angeles.

That from 1922 to 1927 he was employed as Gas Engineer for the Railroad Commission of the State of California; [fol. 87] and that from 1927 to date he was and now is employed as gas administrator for the Railroad Commission of the State of California.

That the duties of this office of Gas Administrator include:

1. Attention to all gas matters before the Commission, including purchase and sale contracts, certificates for construction and operation of transmission lines and appurtenances, rates, service, etc.

2. The keeping in close and active touch with the production, utilization and wastage of all natural gas in the State, and the compilation of statistics in connection therewith.

3. The close study of and acquaintance with the present and future sources of supply of natural gas in the State.

4. The active co-operation and assistance in the conservation of natural gas.

5. The relegating to each distributing utility its pro-rata share of the natural gas that is available in case of any deficiency of supply.

6. The routing of the natural gas from the various fields which is of different heating values, so that the average heating value of the gas delivered may be as uniformly high as possible.

7. The putting on and taking off of industrial consumers who use surplus natural gas only on a shut-off basis, so that [fol. 88] when the domestic and commercial demands are increased materially the gas being furnished to the industrial consumers may be promptly and efficiently withdrawn and used to meet this domestic demand.

8. In the ultimate event of an inadequate supply of natural gas to meet a particularly urgent domestic demand, to supervise the operation of the oil gas manufacturing plants of the gas utilities in the most efficient and economical manner for the purpose of manufacturing the minimum quantity of oil gas possible to meet the emergency without unduly lowering the heat content of the gas sendout.

That Santa Fe Springs Oil Field as herein referred to is that portion of the Rancho Santa Gertrudes, in the County of Los Angeles, and in Oil and Gas District No. 1, State of California, more particularly described as follows:

The Southeast quarter of Section 36, Township 2 South, Range 12 West, and the East half of Section 1, Township 3

South, Range 12 West, and the South half of Section 31, Township 2 South, Range 11 West, and all of Section 5 and all of Section 6, and the North half of Section 7 of Township 3 South, Range 11 West.

That a cubic foot of gas as referred to in this affidavit is measured at a temperature of 60° F. and a pressure of [fol. 89] 14.733 pounds per square inch and a barrel of oil as referred to herein contains 42 liquid gallons.

That natural gas from said oil and gas zones in and under the surface of the land in said Santa Fe Springs Oil Field for many years last past has been and now is being brought to the surface of the earth through wells extending into said zones, and after the gasoline has been removed therefrom the said gas has been and a large part of said gas now is being used in the generation of light, heat, power and used for other industrial purposes by the People of the said State of California, in the County of Los Angeles, and particularly in the City of Los Angeles, and other cities of said State in the vicinity thereof, to which places of use in said cities and county said gas, after being brought to the surface of the earth through wells and the gasoline removed therefrom, has been and now is conducted through pipes and distributed and sold as a public utility service. By the use of natural gas so produced, distributed and sold, many hundreds of thousands of the People of the State of California are now and have been for many years last past continuously supplied with gas for fuel, heat and other domestic purposes.

That the fuel supplied by the natural gas obtained from these subsurface sand zones is the cheapest and best fuel known to mankind, and the value of the natural gas deposit [fol. 90] in said Lower Clark Zone of Santa Fe Springs Oil Field to the State of California and to its citizens is many millions of dollars; that since the discovery and bringing under control of the gas deposits in said Santa Fe Springs Oil Field large sums of money have come into the State of California, and have been invested in large manufacturing plants, and other large sums of money belonging to the People of the State of California have been invested in similar manufacturing enterprises, causing a great increase in the population of said state, and said county. That many cities in and adjacent to said Santa Fe Springs Oil Field, including the City of Los Angeles, are dependent in

a large measure for fuel upon natural gas, and for that reason the People of the State of California have become and are interested in the protection and continued preservation of the natural gas supply. That many millions of dollars invested in manufacturing and other properties in and near said oil field are wholly dependent for their continued preservation, and for premanent value of their property upon said natural gas supply; that their location and establishment in the vicinity was due in large measure to the presence of natural gas being available from said oil field, without which such enterprises cannot operate at a profit and in the event the supply of natural gas should be exhausted many such enterprises, in which thousands of the [fol. 91] citizens of the State of California find employment at remunerative wages, will be compelled to stop operation.

That in the City of Los Angeles and other cities in the vicinity of said Santa Fe Springs Oil Feld, the inhabitants have for many years used increasing quantities of natural gas for fuel; that their houses have in many instances been constructed with a view to the use of such fuel and have been equipped for the use of such fuel and will have to be differently equipped before other kinds of fuel can be used, and that such use of natural gas has become and is a source of great convenience and comfort. That in the year 1928 there was a total production of natural gas from and through wells from the subsurface oil and gas zones in the State of California in excess of 316,830,147,000 cubic feet, of which there was used more than 237,000,000,000 cubic feet and less than 238,000,000,000 cubic feet as follows:

For domestic and commercial uses	34,000,000,000
Industrial uses	42,000,000,000
Field use, shrinkage, etc.	153,000,000,000
Distribution and transmission losses	8,000,000,000
Wasted into the air	77,000,000,000

[fol. 92] That beginning with the month of October, 1928, and continuing until the present time, the production of natural gas as aforesaid has greatly increased and is increasing more rapidly than the same is being put to beneficial use, with the result that the proportion wasted into the air has greatly increased since October, 1928, and is continuing to increase.

That the State of California, the County of Los Angeles, the City of Los Angeles, and other public corporations and state agencies relying upon the permanent supply of natural gas, have at great expense equipped many of their public institutions, including the Court House of the County of Los Angeles, the City Hall of the City of Los Angeles, the County Hospital of the County of Los Angeles, and other institutions owned and maintained by the said State of California and its various subdivisions for the use of natural gas as a fuel by which the cost of maintaining the public buildings and institutions above mentioned has been materially lessened and the comfort of their occupants greatly increased.

That the wealth of the State of California, and its revenues derived from taxation on account of the increased population and the various manufacturing plants that have been fostered and supported by natural gas, have been greatly increased, and will, in the event that the supply of natural gas is unreasonably wasted so that it is no longer [fol. 93] available to the People of the State, be correspondingly curtailed. That if the natural gas supply in said zones of the Santa Fe Springs Oil Field is husbanded and protected it will last for many years and continue to furnish many of the inhabitants of the State of California with fuel, and the proportionate wealth and other material interests of the State of California, and particularly the subdivisions thereof hereinbefore mentioned will continue to be benefited and enhanced and the comfort of their inhabitants greatly increased.

That the monthly production, utilization and wastage of natural gas from all California fields for the first seven months of the year 1929 was as follows:

[fol. 94] Figures in Thousands of Cubic Feet

1929, month	Total net production	Total utilization	Total wastage (blown)
January	37,621,000	25,293,000	12,328,000
February	39,616,000	23,739,000	15,877,000
March	44,202,000	25,929,000	18,273,000
April	41,635,000	23,587,000	18,048,000
May	41,343,000	24,165,000	17,178,000
June	43,734,000	24,477,000	19,257,000
July	51,382,000	24,414,000	26,968,000
Totals	299,533,000	171,604,000	127,929,000

The following figures are for Santa Fe Springs alone—Year 1929:

1929, month	Total net production	Total utilization	Total wastage (blown)
January	19,524,000	3,800,000	5,724,000
February	12,674,000	4,396,000	8,278,000
March	13,813,000	5,142,000	8,671,000
April	10,262,000	4,031,000	6,231,000
May	10,111,000	4,303,000	5,808,000
June	13,361,000	5,144,000	8,217,000
July	18,672,000	5,393,000	13,279,000
Totals	88,417,000	32,209,000	56,208,000

[fol. 95] That the total amount of gas blown to the air during the first seven months of 1929 totals almost 128 billion cubic feet as against a total of 77 billion cubic feet for the entire year of 1928. This situation is due to the greatly increased production of natural gas.

That at the present rate of discharge the Santa Fe Springs Oil Field will be depleted of natural gas within three years. If and when the natural gas supply in California becomes exhausted it will be necessary for the gas utilities to return to the generation of gas from oil or coal, relatively expensive processes which will yield a gas with approximately one-half of the heating value of natural gas. Due to the relatively high cost of the manufacture of this oil or coal gas, it may be reasonably anticipated that the rates will then be increased above the rate at which natural gas is now sold to public consumers and that such increase will prohibit the use of natural gas as a fuel for industrial purposes. That the price of natural gas at the well or plant for removing the gasoline varies slightly on either side of ten (10¢) cents a thousand cubic feet wholesale, and is available for industrial purposes at an average rate of fifteen (15¢) cents a thousand cubic feet. That natural gas must be used as produced as the cost of storage above [fol. 96] ground exceeds its selling value. That in the opinion of affiant no wells in Santa Fe Springs Oil Field should be kept on production at a gas-oil ration of more than 2500 cubic feet of gas to each barrel of oil produced, and that sufficient gas can be produced from the wells at a gas-oil ratio lower than 2500 cubic feet of gas to each barrel

of oil to utilize all existing pipe line facilities for delivering gas for use in that field and for transportation for use out of that field.

That attached hereto and marked Exhibit "I" is a graf showing in thousand cubic feet per month the field production of natural gas in all the oil fields in oil and gas District No. 1, to wit, Signal Hill, Santa Fe Springs, Huntington Beach, Torrance, Dominguez, Rosencranz, Inglewood and Seal Beach, and also Ventura Avenue Field in District No. 2, which contributes to the supply of gas used in the County of Los Angeles, which graf covers the period from January 1, 1923, to August 31, 1929.

That attached hereto is a graf marked Exhibit "II" showing in thousand cubic feet of natural gas per month the production, utilization and wastage of natural gas from the same oil fields above mentioned and also showing separately the domestic sales plus industrial sales, the total of domestic sales, industrial sales and field use and the total produc-
[fol. 97] tion from the 1st day of January, 1920, to the 31st day of August, 1929.

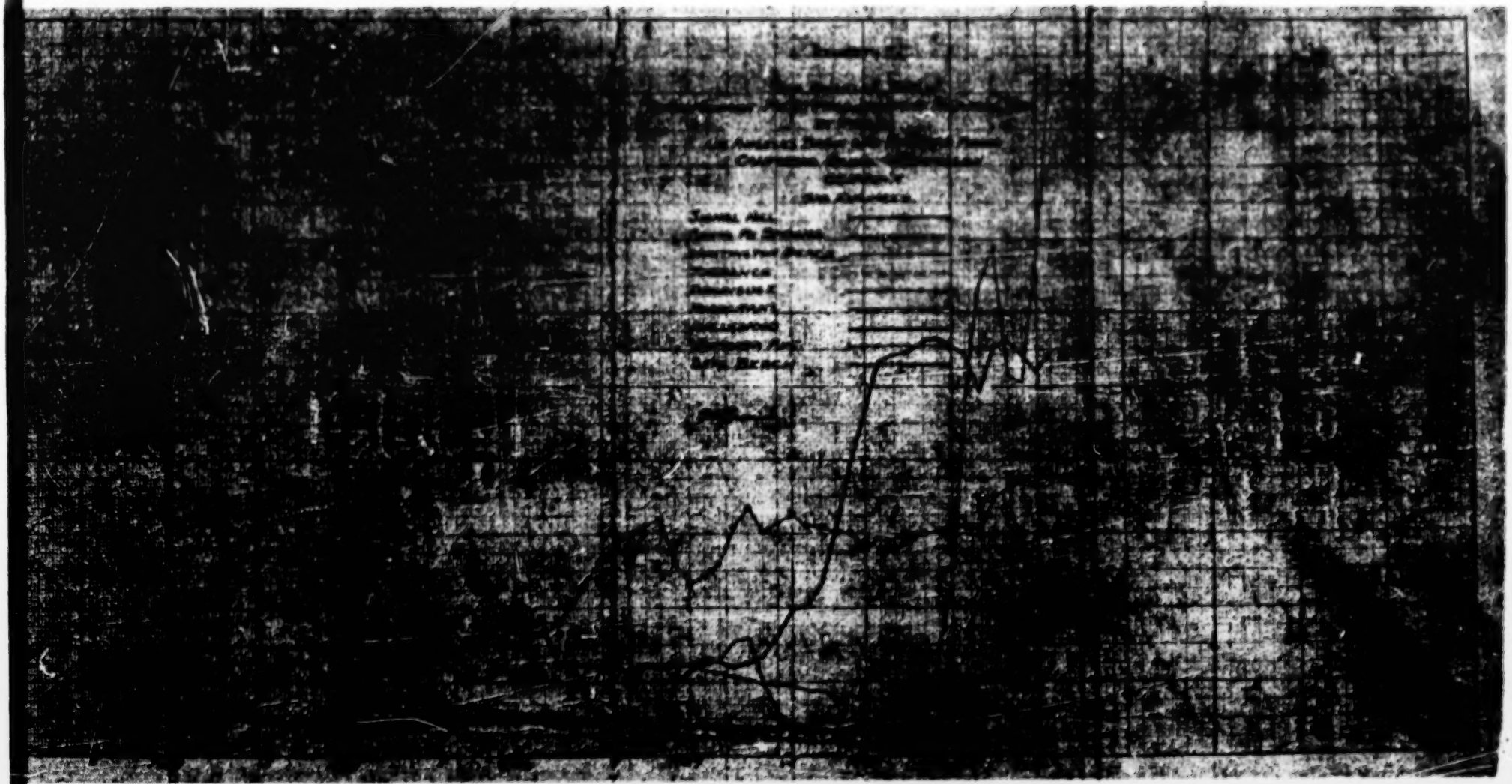
Claude C. Brown.

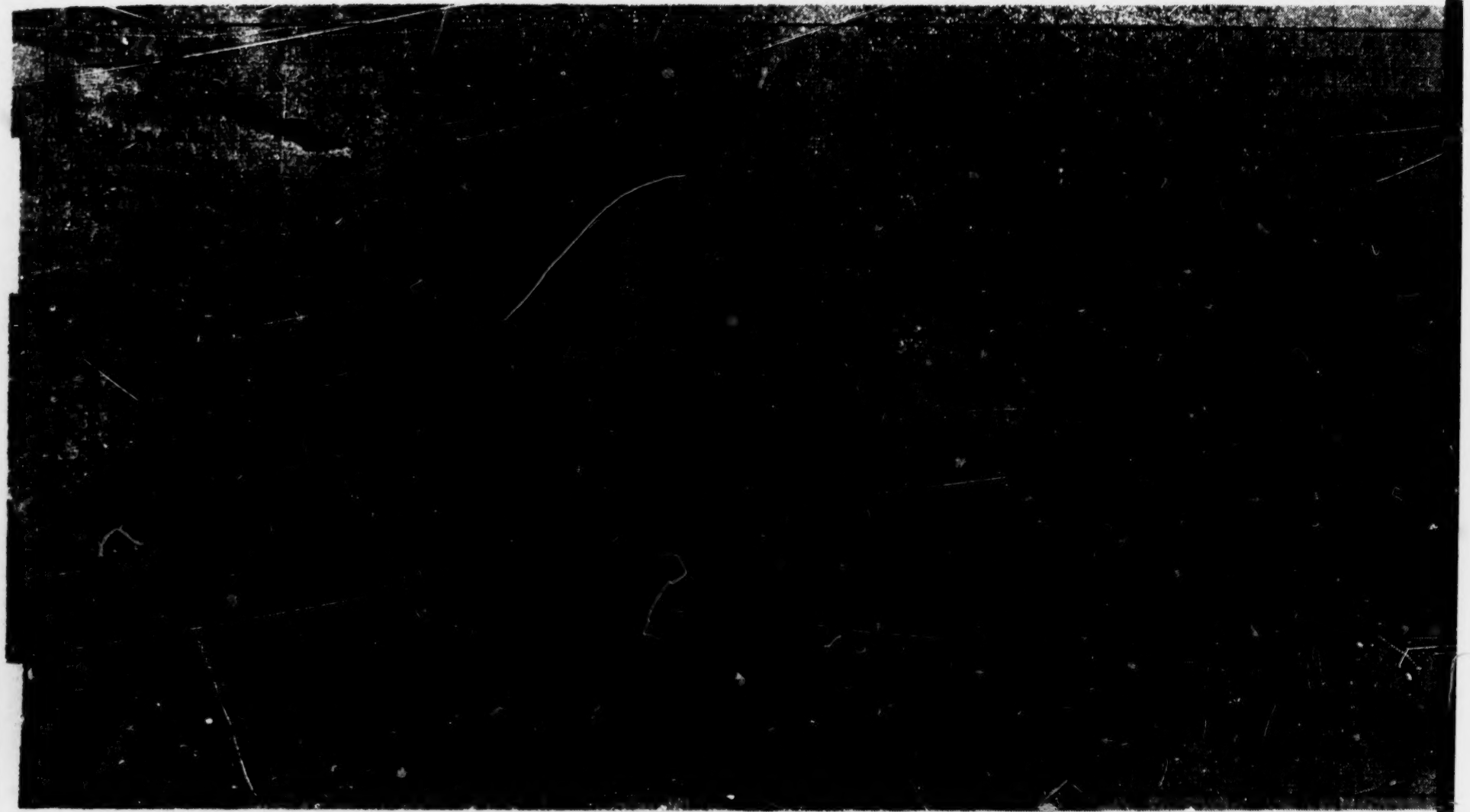
Subscribed and sworn to before me this 10th day of September, 1929. Louise M. Hilt, Notary Public in and for the County of Los Angeles, State of California. (Seal.)

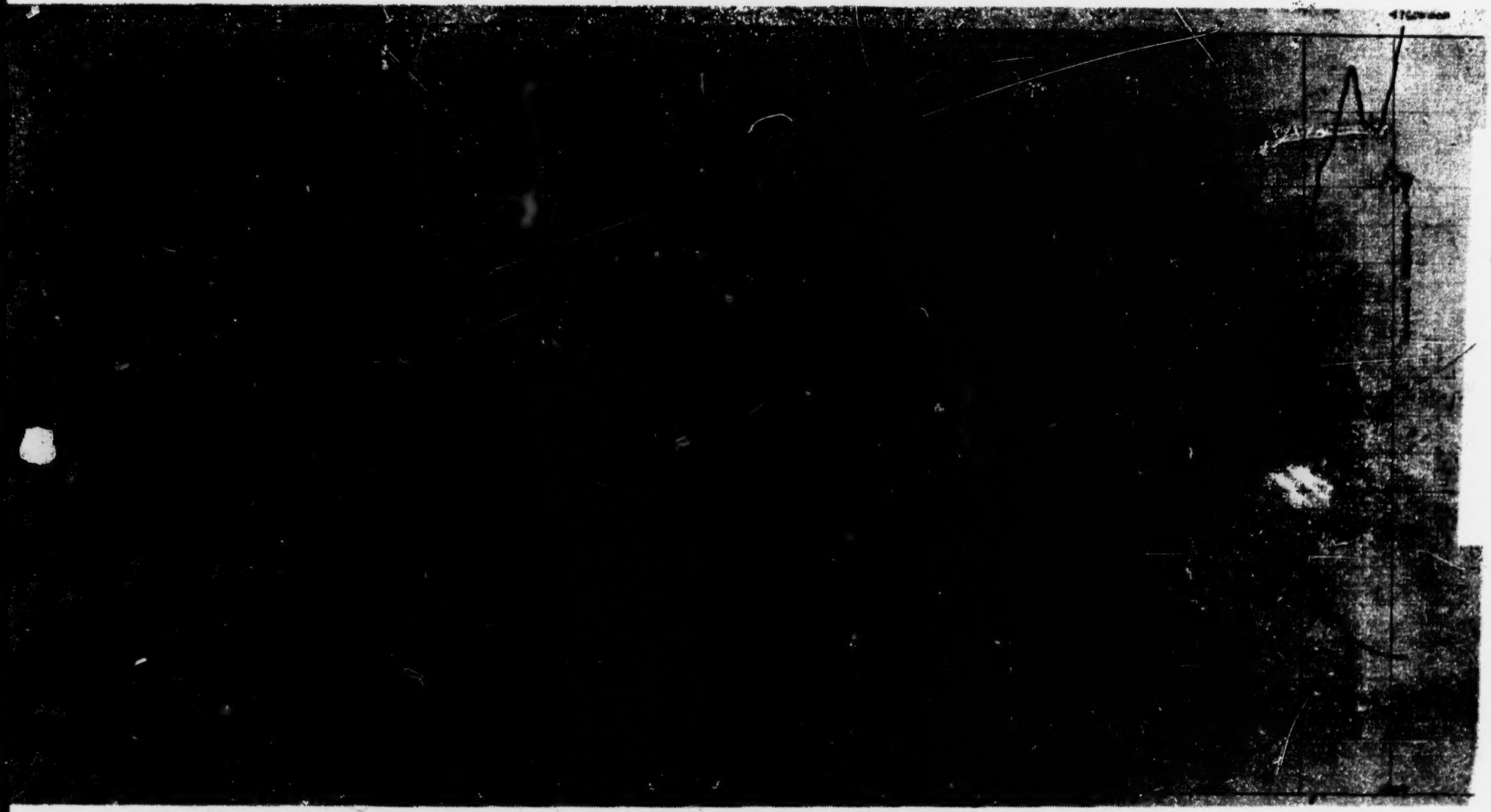
(Blue Print)

Endorsed: Filed September 11, 1929. L. E. Lampton, county clerk, by W. D. Buckey, deputy.

(Here follows blue prints, side folios 97a and 97b)







[fol. 98] EXHIBIT 7 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANIES et al., Defendants

Demurrer of Defendants Ambassador Petroleum Co., Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Co., Inc., and Wilshire Annex Oil Co.

Come now the defendants Ambassador Petroleum Co., Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Co., Inc., and Wilshire Annex Oil Co., and separating themselves from their co-defenadnts and from one another, do hereby each severally demur to the complaint on file herein, upon the following grounds:

1. Said complaint does not state facts sufficient to constitute a cause of action.

2. Said complaint does not state facts sufficient to constitute a cause of action against all or any of these demurring defendants.

3. Said complaint does not state facts sufficient to constitute a cause of action against all or any of these demur- [fol. 99] ring defendants, particularly upon the ground that the sections of the statute upon which the same is based are, and each of them is, and the relief prayed for if granted against any of these demurring defendants would be, in violation of the Fourteenth Amendment of the Constitution of the United States, and would deprive each of these demurring defendants of their liberty, and take from each of them their property, without due process of law and without just compensation, and each of these demurring defendants here and now claims and invokes the protection and guarantees of the Fourteenth Amendment of the Constitution of the United States.

4. Said complaint does not state facts sufficient to constitute a cause of action against all or any of these demurring defendants upon the ground that the sections of the statute upon which the same is based are, and each of them is, and the relief prayed for if granted against any of these demurring defendants would be, in violation of the Fourteenth Amendment of the Constitution of the United States, and would deny to each of these demurring defendants the equal protection of the laws, and each of these demurring defendants here and now claims and invokes the protection and guarantees of the Fourteenth Amendment of the Constitution of the United States.

[fol. 100] 5. Said complaint does not state facts sufficient to constitute a cause of action against all or any of these demurring defendants upon the ground that the sections of the statute upon which the same is based are, and each of them is, and the relief prayed for if granted against any of these demurring defendants would be, in violation of section 10 of article I of the Constitution of the United States providing that no state shall pass any laws impairing the obligation of contracts, and each of these demurring defendants here and now claims and invokes the protection and guarantees of the said provision of the Constitution of the United States.

6. Said complaint does not state facts sufficient to constitute a cause of action against all or any of these demurring defendants upon the ground that the sections of the statute upon which the same is based are, and each of them is, and the relief prayed for if granted against any of these demurring defendants would be, in violation of section 13 of article I of the California Constitution providing that no person shall be deprived of liberty or property without due process of law, and also section 14 of article I of the California Constitution providing that private property shall not be taken or damaged for public use without just compensation having first been made to, or paid into court for, the owner.

[fol. 101] 7. Said complaint does not state facts sufficient to constitute a cause of action against all or any of these demurring defendants upon the ground that the sections of the statute upon which the same is based are, and each of

them is, and the relief prayed for if granted against any of these demurring defendants would be, in violation of section 1 of article III, section 1 of article IV and section 1 of article VI, of the California Constitution.

8. Said complaint does not state facts sufficient to constitute a cause of action against all or any of these deraurring defendants upon the ground that the sections of the statute upon which the same is based are, and each of them is, and the relief prayed for if granted against any of these demurring defendants would be, in violation of section 16 of article I of the California Constitution providing that no law impairing the obligations of contracts shall ever be passed.

9. Said complaint does not state facts sufficient to constitute a cause of action against all or any of these demurring defendants upon the ground that the sections of the statute upon which the same is based are, and each of them is, and the relief prayed for if granted against any of these demurring defendants would be, in violation of sections 11 [fol. 102] and 21 of Article I, and subdivisions 19 and 33 of section 25 of article IV, of the California Constitution.

10. The court has no jurisdiction over the subject of the action.

11. The plaintiff has not the legal capacity to sue.

12. There is a defect of parties defendant, in this, that it appears from said complaint that the operators of said wells are not the owners of the land upon which said wells are located, but hold same under lease from the owners, and that such owners are necessary and indispensable parties to this suit.

13. Several causes of action have been improperly united, to wit, an alleged cause of action from the viewpoint and for the protection of the correlative rights of the owners of the surface of the lands embraced within the Santa Fe Springs oil field described in said complaint and an alleged cause of action from the viewpoint and for the protection of the supposed rights of the general public and of consumers of natural gas.

14. Several causes of action are set forth in said complaint which are not separately stated, to wit, an alleged

cause of action from the viewpoint and for the protection of the corelative rights of the owners of the surface of the lands embraced within the Santa Fe Springs oil field de-
[fol. 103] scribed in said complaint and an alleged cause of action from the viewpoint and for the protection of the supposed rights of the general public and of consumers of natural gas.

15. Said complaint is uncertain in each and all of the following particulars:

(a) In that it cannot be ascertained therefrom how, or to what extent, or in what manner, or in what particular, or by what means, or by reason of what facts, any of these demurring defendants or all or any of the other defendants have heretofore unreasonably wasted, or are now unreasonably wasting, natural gas from any of the wells in said Santa Fe Springs oil field.

(b) In that no facts are set forth from which the court can determine whether or not all or any of these demurring defendants are unreasonably wasting natural gas.

(c) In that it cannot be ascertained therefrom what facts are alleged to constitute an unreasonable wasting of natural gas by all or any of these demurring defendants or by any of the other defendants.

(d) In that it cannot be ascertained therefrom what is meant or intended by the expression used therein reading "unreasonably wasting natural gas" or the expression reading "unreasonable wasting of natural gas" and similar expressions.

[fol. 104] (e) In that it cannot be ascertained therefrom which of the zones referred to in paragraph 7 of said complaint are separated from the adjoining zones by strata of sand containing water, or what portion of said zones are so separated, or what zone or parts of any zone are closed by strata containing water excluded from the oil and gas zone by the pressure therein.

(f) In that it cannot be ascertained therefrom as to any of the zones referred to in paragraph 8 as being filled with sand containing oil and gas under pressure, what portion of the oil is in the form of gasoline vapor, what portion of the

gas is dissolved in the oil, what portion of the gas exists as a liquid, or what portion of the gas adheres to the surface or interfaces between the gases and liquids, or what portion exists as a free gas, or whether such proportions as may exist in any zone are general and uniform throughout said zone and/or throughout said oil field.

(g) In that it cannot be ascertained therefrom when a well penetrates one of the zones referred to in paragraph 8, whether the resulting drop alleged in the gas pressure throughout the zone is appreciable or substantial, reasonable or unreasonable or to what extent there is a drop in the pressure, or whether such drop is general and uniform or varies, or whether the allegation that there is a drop [fol. 105] throughout the zone applies to each and all of said zones or to only a part of them, and if the latter to which of said zones it applies.

(h) In that it cannot be ascertained therefrom whether, when a well is opened into any zone, it disturbs the pressure of gas in all parts of the zone alike, or to what degree it affects such pressure in various parts of the zone, or whether such degree is slight or inappreciable, or is reasonable or unreasonable or what is the extent thereof.

(i) In that it cannot be ascertained therefrom in what wells or in how many, or in what percentage of cases, or in what specific instances, the ultimate loss of oil recovery from a zone is reduced or doubled with the increase in flow of gas above a ratio of 2,500 cubic feet of gas to a barrel of oil, or to what extent the ultimate loss of oil recovery from any well or zone is reduced by the increase in the flow of gas from such well or zone above a ratio of 2,500 cubic feet of gas to a barrel of oil.

(j) In that it cannot be ascertained therefrom what amount of gas withdrawn by one operator through a well entering the sand of any one of the zones referred to in the complaint will unreasonably reduce the supply available to each other operator of a well into said zone, or unreason- [fol. 106] ably increase the difficulty of each operator in obtaining oil and gas through each other well drilled into the said zone or will unreasonably reduce the gas pressure

in said zone, or how, or to what extent, or in what manner any of the rights of any operator will be invaded, injured, or damaged by any of the acts alleged in the first sentence of paragraph 9 in said complaint.

(k) In that it cannot be ascertained therefrom how, or in what manner, the people of the state of California will be damaged or injured by any of the acts set forth in the complaint.

(l) In that it cannot be ascertained therefrom what wastage of gas through any well entering the sand in any zone in said Santa Fe Springs oil field is reasonable or unreasonable or will damage or injure, continuously or otherwise, each operator having the right to penetrate said zone and withdraw oil and gas or gas from said zone.

(m) In that it cannot be ascertained therefrom how or by what means, or by reason of what facts, or to what extent, or in what manner, there is now being unreasonably wasted, blown, released and/or allowed to escape into the air any of the natural gas referred to in paragraph 12 of the complaint, or what particular act or acts, omission or omissions, [fol. 107] sufferance or insistence of all or any of these demurring defendants or of the other defendants have caused an unreasonable waste of gas for more than thirty days last past, or what particular act or acts, omission or omissions, sufferance or insistence all or any of the acts threaten to continue.

(n) In that it cannot be ascertained therefrom which of the operators of wells in said Santa Fe Springs oil field are owners of the land upon which the same are located, and which of them are lessees, or what are the terms and provisions of the leases referred to in the complaint, or whether the defendant in charge of any well is owner or lessee, or how, or in what manner, or to what extent, or in what instances, owners of land are or will be injured or damaged by any of the acts alleged in paragraphs 12 and 13 of the complaint.

(o) In that it cannot be ascertained therefrom how, or by what means, or by reason of what facts, or acts or omissions, all or any of the defendants are wilfully permitting natural gas to escape from all or any of the wells in said Santa Fe Springs oil field.

(p) In that it cannot be ascertained therefrom how, or by what means, or by reason of what facts, the gas referred to as being unreasonably wasted and permitted to escape [fol. 108] can, or should be, saved or conserved for beneficial use by all operators in said Santa Fe Springs oil field, or for what beneficial use the same can be saved or conserved for such purpose, or what would be the cost thereof as compared to the benefits to be received by the operators in said field, or whether or not said benefits will be general or uniform to all operators in said field, or what would be the nature or extent of such benefits, or whether the gas which is alleged could be saved and conserved by confinement in the zones of said field until the same can be beneficially used for fuel, heat and power would be reasonable or unreasonable or of benefit to all the operators of said field or to the people of the state of California, or what right or interest the people of the state of California have therein or thereto.

(q) In that it cannot be ascertained therefrom how, or in what manner, or by reason of what facts, the oil or gas below the surface of the earth in said field is a natural resource of the people of the state of California, or how, or in what manner, or by reason of what facts the people of the state of California have any right, title or interest therein.

(r) In that it cannot be ascertained therefrom whether or not the gas which is alleged in the complaint to be unreasonably wasted and blown into the air has any market [fol. 109] value, or what amount of oil was produced by the propulsive force thereof, or what is the value of such oil as compared to the value of the gas alleged to be unreasonably wasted and blown into the air.

(s) In that it cannot be ascertained therefrom what percentage of the gas produced from the Santa Fe Springs oil field, after the gasoline has been removed therefrom, is now being used in the generation of light, heat, power or other industrial purpose by the people of the state of California in the county of Los Angeles and/or the city of Los Angeles and/or other cities in the vicinity thereof, or has been so used during any period last past, or what percentage thereof has been or now is conducted through pipe lines and/or distributed or sold as a public utility service.

(t) In that it cannot be ascertained therefrom whether there has been or is any market demand or market value for the natural gas heretofore and now being produced from Santa Fe Springs oil field which it is alleged has been and is being unreasonably wasted and blown into the air, or what other sources of supply of natural gas there have been or are now for consumers of gas in the city of Los Angeles and other cities and communities in the vicinity thereof, or whether the demand therefor exceeds or is less than the available supply, and to what extent, or what proportion of [fol. 110] the demand therefor is supplied from sources other than Santa Fe Springs oil field, or how long the supply of natural gas will continue.

(u) In that it cannot be ascertained therefrom how much, if any, of the moneys coming into California and invested in manufacturing plants and other industrial enterprises, or how much, if any, of the increased population of the state, was caused by the discovery of, and bringing under control, gas deposits in the Santa Fe Springs oil field.

(v) In that it cannot be ascertained therefrom what other fuels are available for use in the cities referred to, or to what extent their cost is greater than natural gas, or to what extent they (said cities) are dependent for fuel upon natural gas, or to what extent they are dependent for fuel upon natural gas produced from Santa Fe Springs Oil field.

(w) In that it cannot be ascertained whether the many millions of dollars alleged to be invested in manufacturing and other properties in and near said oil field are wholly dependent for their continued preservation and/or permanent value of their property upon the natural gas supply in Santa Fe Springs oil field, or upon the supply of natural gas from this and other fields, or to what extent.

(x) In that it cannot be ascertained therefrom how, or for what purpose, or in what manner, the 153 billion cubic [fol. 111] feet of natural gas alleged to be used in 1928 for "Field use, shrinkage, etc." was used, or how much of the gas alleged to have been wasted into the air within the state during the said year was utilized as a propulsive force in producing oil, or how much oil was produced in the state during said year through the propulsive use and power of natural gas produced from oil wells during said year, or

what is the relative value of the oil so produced to the natural gas alleged to have been wasted into the air, or whether or not the natural gas alleged to have been wasted into the air had any market value, or whether it was commercially practicable to conserve the same for any beneficial use, or what has been the relative effect of the increased amount of oil produced by the amount of natural gas alleged to have been wasted into the air upon the wealth and revenues of the state and the increase of population as compared to the effect thereon of the alleged waste of natural gas.

(y) In that it cannot be ascertained therefrom how, or in what manner, or by reason of what act or acts of any of the defendants the property of plaintiffs has been, or will continue to be, interfered with, or what property of plaintiffs will be thereby interfered with.

(z) In that it cannot be ascertained therefrom what amount of back pressure of gas is necessary to secure the maximum recoverable supply of oil and gas in the zones of [fol. 112] said oil field, or which, if any, of the defendants are failing, or have failed, to maintain sufficient back pressure at the surface, or to what extent.

(aa) In that it cannot be ascertained therefrom what particular acts or omission or commission of any of the defendants are causing any injury or damage to other lessees, lessors and/or operators, or are depriving them or any of them of their alleged equal and correlative right to produce oil and gas from each of said zones underlying their said properties.

(bb) In that it cannot be ascertained therefrom how, or in what manner, the natural gas which is alleged to be unreasonably wasted and blown into the air can be profitably marketed or commercially utilized for any domestic and/or industrial purposes.

(cc) In that it cannot be ascertained therefrom what amount of oil or gas has been or is being produced from any particular well or wells of or by any of the defendants, or whether the amount of gas so produced has been or is "in quantities exceeding a reasonable proportion to the amount of oil produced from the same well".

(dd) In that it cannot be ascertained therefrom how or in what manner or by what means oil could or can be produced from any well or wells of any of the defendants without the escape of the natural gas alleged to have been wasted, or by what means the alleged unreasonable waste of natural gas by any defendant can be prevented, or what [fol. 113] specific act is sought to be enjoined or compelled as to any of the defendants.

16. Said complaint is ambiguous upon each of the grounds hereinabove set forth as grounds for uncertainty.

17. Said complaint is unintelligible upon each of the grounds hereinabove set forth as grounds for uncertainty.

Hunsaker, Britt & Cosgrove, by Robert B. Murphey, Wm. L. Murphey, Attorneys for Defendants Ambassador Petroleum Co., Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Co., Inc., and Wilshire Annex Oil Co.

We, the undersigned, counsel for the demurring defendants in the above and foregoing demurrer, hereby certify that said demurrer is filed in good faith and that, in our opinion, the demurrer and the grounds of demurrer stated are each and all well taken.

Hunsaker, Britt & Cosgrove, by Robert B. Murphey, Wm. L. Murphey, Attorneys for Defendants Ambassador Petroleum Co., Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Co., Inc., and Wilshire Annex Oil Co.

[fol. 114] Memorandum of Points and Authorities in Support of Demurrer and Motion to Strike Out

1. The complaint does not state a cause of action against the defendant, Commodore Oil Company, in that Exhibit AA to said complaint, which is referred to in paragraphs 1 and 12 for a statement of the name of the defendant and the well from which it is alleged gas is unreasonably wasted and/or blown into the air, does not disclose the name of Commodore Oil Company as the operator of any well from which any gas is being unreasonably wasted and/or blown into the air. The allegation that defendants "will continue so to unreasonably waste the gas", etc., is

no more than an allegation that they threaten to, and will, continue their present practice which, as to the defendant, Commodore Oil Company, is not under any theory a violation of law.

2. The complaint does not show that any of these demurring defendants, or any of the other defendants, are violating any of the laws of this state or any right of others.

Statutes of 1915, Chap. 718 and amendments thereto, particularly Statutes 1921, Chap. 535.
Statutes of 1911, approved March 25, 1911.

[fol. 115] The provision of the Act providing that the blowing, release or escape of natural gas into the air shall be prima facie evidence of unreasonable waste, violates the requirement of Federal and state constitutions of due process of law.

Western & Atlantic R. R. Co. v. Henderson, 49 U. S. Sup. Ct. Rep. 445 (Advance Sheets).
McFarland v. American Sugar Co., 241 U. S. 79.
In re Peterson, 253 U. S. 300.

3. The action is premature and unauthorized in that it does not appear that any proceedings have been instituted under section 8d of the Statute (Cal. Stats. 1929, Chap. 535), or that any order has been made therein (in proceedings instituted under said section), or that any such order has become final or has been filed with the director of the department of natural resources or has not been complied with.

Statutes 1929, Chap. 535, sections 8d, 14a and 14b.

4. The statute in its attempt to prohibit and make unlawful "the unreasonable waste of natural gas", is so vague, uncertain and indefinite and is so devoid of any guide or standard for determining what shall constitute waste of natural gas, or reasonable waste of natural gas, or unreasonable waste of natural gas, that it violates the due process [fol. 116] clauses of both the Federal and California Constitutions.

Fourteenth Amendment United States Constitution,
Section 13, Article I, California Constitution,
United States v. Cohen Grocery Co., 255 U. S. 81,
Cline v. Frink Dairy Co., 274 U. S. 445,

In re Peppers, 189 Cal. 682,
Hewitt v. Board of Medical Examiners, 148 Cal. 590,
People v. Pace, 73 Cal. App. 548,—a decision by Judge Hahn of this court sitting pro tem. in the District Court of Appeal,
Small Co. v. American Sugar Refining Co., 267 U. S. 233, 238,
Standard Chemical & Metals Corp. v. Waugh Chemical Corp., 231 N. Y. 51, 131 N. E. 566,
United States v. Reese, 92 U. S. 214,
United States v. Brewer, 139 U. S. 278,
United States v. Sharp, 27 Fed. Cases, 1041,
Chicago & N. W. Ry. Co. v. Dey, 35 Fed. 866,
Tozer v. United States, 52 Fed. 917,
United States v. Capital Traction Co., 34 App. D. C. 592,
Louisville & N. R. Co. v. Commission, 99 Ky. 132, 35 S. W. 129.

[fol. 117] 5. The 1929 statute referred to does not purport to delegate to any administrative officer or to the court, the right to define or prescribe what shall constitute waste of natural gas, or what shall constitute reasonable waste of natural gas, or what shall constitute unreasonable waste of natural gas. But if it does so it is void as an unlawful attempt to delegate legislative powers to administrative offices or to the court, contrary to the California Constitution.

California Constitution, Art. 3, sec. 1, Art. 4, sections 1, 15, 16.

(a) For distinction between a legislative and a judicial act, (viz., the former describing rules of contract for the government of the citizen or subject, while the latter punishes and redresses or prevents wrongs growing out of legislative rules previously established, and determines whether or not such rules have been violated or a violation thereof is or is not threatened), see:

People v. Board of Education, 54 Cal. 375,
Smith v. Strother, 68 Cal. 194, at 196-198,
Ex parte Shrader, 33 Cal. 279 at 283,
Tulare Water Co. v. State Water Com., 187 Cal. 533 at 542.

[fol. 118] (b) The legislature has no power to confer other than judicial functions upon the courts.

Smith v. Strother, 68 Cal. 194,
People v. Sanderson, 30 Cal. 160,
Burgoine v. Board of Supervisors, 5 Cal. 9,
Hardenburgh v. Kidd, 10 Cal. 402 and cases hereinafter cited.

(c) The legislature has no power to delegate to the courts, or the supervisor of oil and gas, or to the director of natural resources, the right to prescribe or lay down rules as to what constitutes waste or reasonable waste or unreasonable waste.

In re Peppers, 189 Cal. 682,
State v. Johnson, 61 Kansas, 803, 60 Pac. 1068,
Yick Wo v. Hopkins, 118 U. S. 356, 372-373.

6. The sections of the statute upon which this action is based for the granting of the relief prayed for, would deprive the demurring defendants of their liberty and property without due process of law and without just compensation.

Fourteenth Amendment U. S. Constitution,
California Constitution, secs. 13 and 14, Art. 1,
[fol. 119] Pennsylvania Coal Co. v. Mahon, 260 U. S. 393,
Williams v. Standard Oil Co., 49 U. S. Supreme Ct. Rep. 115 and cases cited,
West v. Kansas Natural Gas Co., 221 U. S. 229,
Gas Products Co. v. Rankin, 63 Mont. 372, 207 Pac. 993,
Huber v. Merkel, 117 Wis. 355, 94 N. W. 354,
Ex parte Dickey, 144 Cal. 234.
Herminghaus v. So. Cal. Edison Co., 200 Cal. 81,
Isom v. Rex Crude Oil Co., 147 Cal. 654,
Graciosa Oil Co. v. Santa Barbara, 155 Cal. 140,
Acme Oil & Mining Co. v. Williams, 140 Cal. 681,
Swift v. Occidental Mining etc. Co., 141 Cal. 161,
St. Germain Irrigation Ditch Co. v. Hawthorn Ditch Co., 32 N. Dak. 260, 313, 143 N. W. 124, 1135.

7. The statute cannot be sustained as a conservation measure in the interest of consumers or of the general public in natural resources held in private ownership. There-

fore, to make the amount of oil which a defendant can produce dependent upon the commercial outlets which he can find for the natural gas produced in order to flow oil from his wells, would constitute a taking of liberty and property [fol. 120] without due process of law. (See cases above cited.)

Ohio Oil Co. v. Indiana, 177 U. S. 19,
West v. Kansas Natural Gas Co., 221 U. S. 229,
Haskell v. Kansas Natural Gas Co., 224 U. S. 218,
Herminghaus v. Southern Cal. Edison Co., 200 Cal. 81.

8. The provisions of the statute sought to be enforced, and also the relief prayed for against these demurring defendants, will impair the obligations of the various leases and the rights of both lessors and lessees thereunder, and will therefore be unconstitutional.

Sec. 10, Art. I, U. S. Constitution,
Sec. 16, Art. I, California Constitution,
Pennsylvania Coal Co. v. Mahon, 260 U. S. 393,
Cooley's Constitutional Limitations, Eighth Ed., Vol. I, page 583,
McGee v. San Jose, 68 Cal. 90,
Acme Oil & Mining Co. v. Williams, 140 Cal. 681,
Mohawk Oil Co. v. Hopkins, 196 Cal. 148,
Brookshire Oil Co. v. Casmalia etc. Co., 156 Cal. 211,
20 Cal. Juris. 266 and cases cited,
Maverick Oil Co. v. Howell, 237 S. W. 40,
Swift Oil Co. v. Howell, 250 S. W. 1070.

[fol. 121] 9. To construe and enforce the provisions of the statute under which this action was brought as contended for by plaintiff, or to grant the relief prayed for, will deprive each of the defendants of the equal protection of the laws, and will violate the United States Constitution and also the California Constitution.

Fourteenth Amendment, United States Constitution,
California Constitution, Art. 1, secs. 11 and 21, Art. IV, sec. 25, subds. 19 and 33.

A construction of the act which would favor owners or lessees having gas contracts and other commercial outlets for their natural gas and/or storage facilities and/or repressuring equipment or the financial means to obtain the

same, so as to enable them to flow oil on a larger and preferential scale, thereby draining oil from lands of others, and produce and sell more oil than those not having such gas contracts or commercial outlets or storage or repressuring facilities or the financial means to obtain the same, would violate each of the foregoing provisions, and would be grossly oppressive and discriminatory.

(a) Equal protection of the laws is denied.

Cotting v. Kansas City Stock Yards, 183 U. S. 79 (where the definition of a public stock yard in a Kansas statute regulating public stock yards was made to depend upon the volume of business done [fol. 122] and the facts showed that its operation in effect was discriminatory).

Yick Wo v. Hopkins, 118 U. S. 356, 366-374 (in which the court, among other things, said "* * * no greater burdens should be laid upon one than is laid upon others in the same calling * * *" (p. 367).

Stroll v. State [Texas], 255 S. W. 620, 30 A. L. R. 1424.

The guarantee of equal protection of the laws is aimed at undue favor and individual or class privilege, on the one hand, and the hostile discrimination, oppression or inequality on the other; it seeks an equality of treatment of all persons, even though all enjoy the protection of due process.

Truax v. Corrigan, 257 U. S. 312.
Hayes v. Missouri, 120 U. S. 68.

(b) Any attempted classification which is arbitrary, unreasonable or fanciful and without any natural, substantial or logical basis therefor violates the requirements of equal protection of the law.

See cases above cited and

Southern Railway Co. v. Greene, 216 U. S. 400.

In order to make a law general and not special, the classification of the individuals or objects to which it ap- [fol. 123] plies must not be arbitrary, but must be founded on some natural intrinsic or constitutional distinction, and

some reason must appear why the act was not made to apply generally and uniformly to all classes.

Rauer v. Williams, 118 Cal. 401.

Darcy v. Mayor etc. of San Jose, 104 Cal. 642, 645-649.

City of Pasadena v. Stimson, 91 Cal. 238, 248-252, and cases cited.

Bloss v. Lewis, 109 Cal. 493, 498-499.

People v. Central Pac. R. R. Co., 83 Cal. 393, 403-405, 410-411, particularly 413.

Ex parte Sohncke, 148 Cal. 262, 267-268.

10. The court has no jurisdiction over the subject matter of the action, nor has the plaintiff legal capacity to sue. See cases above cited.

11. Courts of equity do not issue mandatory injunctions for a succession of acts continuous in their nature, performance of which cannot be consummated by one transaction and which require supervision and direction demanding special knowledge, skill and judgment.

Pacific etc. Ry. Co. v. Campbell-Johnston, 153 Cal. 106.

Poultry Producers etc. v. Barlow, 189 Cal. 278.

Stanton v. Singleton, 126 Cal. 657.

[fol. 124] 12. There is a defect of parties defendant, in that owners and lessors will necessarily be injuriously effected if the relief prayed for is granted, and are necessary and indispensable parties, and if the relief prayed for is granted defendants will suffer liabilities to others not parties to the suit and a multiplicity of suits will be engendered.

Sec. 389, C. C. P.

Smith v. Cucamonga Water Co., 160 Cal. 611.

O'Connor v. Irvine, 74 Cal. 435.

13. An injunctive complaint must state specific facts upon which the relief is sought. Inferences, generalities, presumptions and conclusions have no place in such a pleading.

Martin v. Danziger, 21 Cal. App. 563.

Willis v. Lauridson, 161 Cal. 106, 108.

City Shore, San Jose, etc. Ry. Co., 150 Cal. 277.

Santa Cruz Fair Building v. Grant, 104 Cal. 306.

Byrne v. Drain, 127 Cal. 663.
Calif. Navigation Co. v. Union Transportation Co., 122 Cal. 641.
Davitt v. American Bakers Union, 124 Cal. 99.
Nat'l. Oil Co. v. Producers Oil Co., 169 Cal. 740.
Streator v. Linscott, 153 Cal. 285.
[fol. 125] Poultry Producers v. Barlow, 189 Cal. 280.
Dabney v. Key, 57 Cal. App. 762-763.
14 Cal. Jur. 260, secs. 66-69, sec. 22, p. 207.

14. Allegations of mere conclusions of law tender no issue and must be disregarded, and a complaint which depends on such conclusions and does not state the facts upon which the legal conclusions are placed is insufficient on general demurrer.

Willis v. Lauridson, 161 Cal. 106.
Callahan v. Broderick, 124 Cal. 80.

15. A complaint should contain allegations of the particulars by which the plaintiff has been or will be damaged by the acts complained of.

Frost v. City of Los Angeles, 181 Cal. 22.
Willis v. Lauridson, 161 Cal. 106.
Spring Valley Water Works v. Fifield, 136 Cal. 214.
Hargro v. Hodgdon, 89 Cal. 623.
McBride v. Freeman, 191 Cal. 152, 215 Pac. 678.
Brown v. Rea, 150 Cal. 171 (holding complaint which failed to show some actual or threatened injury to a private property right of plaintiff insufficient to justify an injunction, and that allegation that the acts complained of will "greatly lessen and diminish the value" of plaintiff's property is too indefinite, etc.).

[fol. 126] 16. A complaint is defective which merely states general conclusions concerning irreparable injury not warranted by any statement of facts. The complaint must allege how and why such injury will result.

14 Cal. Jur. 264, par. 68, and cases cited.

Respectfully submitted.

Hunsaker, Britt & Cosgrove, by Robert B. Murphey and Wm. L. Murphey, Attorneys for Defendants Ambassador Petroleum Co., Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Co., Inc., and Wilshire Annex Oil Co.

Endorsed: Receipt of a copy of the within is hereby admitted this 10th day of Oct., 192-. James S. Bennett, attorney for people. Filed Oct. 10, 1929. L. E. Lampton, county clerk, by N. Hollister, deputy.

[fol. 127] EXHIBIT 8 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. Stevenot, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

Answer of Defendants Ambassador Petroleum Co., Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Co., Inc., and Wilshire Annex Oil Co.

Come now the defendants Ambassador Petroleum Co., Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Co., Inc., and Wilshire Annex Oil Co., and severing themselves from their co-defendants and from one another, each for itself, and without waiving the demurrer or the motion to strike heretofore or contemporaneously herewith served and/or filed, each admits, denies and alleges as follows:

1. Admits that each of these answering defendants is a corporation doing business in the county of Los Angeles, state of California, and is producing oil and gas from wells penetrating some of the zones in the Santa Fe Springs oil field. Denies that all or any of these answering defendants are unreasonably or otherwise or at all wasting natural [fol. 128] gas, either by blowing or releasing, or blowing and releasing, or by causing any other defendant or defendants to blow and/or release, natural gas derived from any well or wells in said Santa Fe Springs oil field into the air, either as alleged in said complaint or otherwise or at all.

Alleges that none of these answering defendants has any information or belief upon the subject sufficient to enable them or any of them to answer the other allegations of paragraph 1 of the complaint, and placing their denial of each of them on that ground denies each and every of the remaining allegations of paragraph 1 of the complaint.

Alleges that none of these answering defendants has any information or belief upon the subject sufficient to enable them or any of them to answer the allegations of paragraph 2 of the complaint, and placing their denial upon that ground, denies each and every allegation therein contained.

3. Admits that the conditions mentioned in paragraphs 3 et seq. of the complaint as existing in Santa Fe Springs oil field are prevalent in the other oil fields in the other oil and gas districts except to the extent that same are hereinafter denied, and admits that the use of natural gas as alleged in the complaint as a propelling force in moving and producing oil is prevalent in the state of California, and alleges [fol. 129] that such use of gas is according to the custom of the various localities throughout California, but denies that the use of natural gas as otherwise alleged in said complaint is either in whole or in part prevalent over a large or any portion of the state of California except as hereinafter alleged or admitted.

4. Alleges that none of these answering defendants has any information or belief upon the subject sufficient to enable them or any of them to answer the allegation contained in the last sentence of paragraph 4 of the complaint, and placing their denial upon that ground denies each and every allegation therein contained.

5. Denies that the oil and gas zone commonly known as and referred to in the complaint as the Upper Clark Zone, or the oil and gas zone commonly known as and referred to in the complaint as the Lower Clark Zone, extends under the whole of the area of said Santa Fe Springs oil field. Denies that there are twelve separate oil and gas zones within the said Santa Fe Springs oil field. Alleges that the twelve zones mentioned in said complaint are not separate and/or distinct oil and gas zones.

6. Alleges that none of these answering defendants has information or belief upon the remaining allegations in para-

graph 5 or of the allegations contained in paragraph 6 sufficient to enable them or any of them to answer all or any of [fol. 130] said allegations and placing their denial upon that ground denies each and every of said allegations.

7. Denies that any water contained within the end plane or planes of any oil and gas zones in said Santa Fe Springs oil field is excluded from such oil and gas zone solely by the gas pressure therein, but alleges that where any such end plane does contain water such water is excluded from said oil and gas zone largely by the oil contained in said gas zone, and is only excluded by the gas pressure therein to an inappreciable extent. Alleges that in most instances of wells drilled into the outermost or flank areas, of any oil and gas zone in said field, after the gas pressure has been depleted, oil is still produced from wells penetrating such zone without any appreciable amount of water appearing or being found in such zones. Alleges that none of these answering defendants has any information or belief upon the subject sufficient to enable them or any of them to answer the allegations contained in the last sentence of paragraph 7 of the complaint, and placing their denial on that ground denies each and every allegation therein contained. Alleges that the allegations contained in said sentence are uncertain and not capable of definite proof.

8. Denies that each of said zones in and under said oil field referred to in paragraph 8 of the complaint is filled [fol. 131] with sand containing oil and gas under pressure as alleged in paragraph 8 of said complaint, but on the contrary alleges that in each of said zones containing oil and gas under pressure all of the gas contained in said zone exists in the form of a liquid which is a part and parcel of the oil contained in said zone. Admits that when a well penetrates one of these oil and gas zones the gas pressure is released from about the well but only as this pressure is a component part of the combined oil and gas pressure causing the oil and gas as component parts of a single fluid, and not otherwise, to begin to flow through the zone toward the point of lower pressure at the well, but denies that as the fluid flows toward the well there is a drop and disturbance in the pressure throughout the zone, except within the immediate vicinity of the well, but alleges that neither such drop nor disturbance is such as to injuriously or unreason-

ably affect like operations of others or the oil and gas structure or zone. Denies that gas produced or allowed to escape from one well penetrating one of the zones referred to in paragraph 8 of the complaint is replaced by gas and/or oil moved and/or drawn from all parts of the zone by the expansion of gas as alleged, or otherwise, or from any part of the zone in any appreciable degree except within the immediate vicinity, but alleges that when other wells on [fol. 132] adjoining lands penetrating the same zone are being operated the area from which the fluid composed of gas and oil is drawn is greatly reduced, and further alleges that none of said operations injuriously or unreasonably affects like operations by others or the gas and oil zone or structure from which the oil and gas are drawn. Denies that gas underlying any given surface area is not fixed in place, but alleges that it is naturally in liquid form as a component part of the oil in each stratum, composing a single fluid substance, and as such, but not otherwise, it is volatile and moves from place to place within the interstices of the zone sand as the pressure is relieved, but not to any appreciable degree beyond the immediate vicinity of the point where the pressure is relieved and that the freedom of such movement varies in different portions of the field, depending upon the specific gravity of the oil, the compactness of the strata, and many other physical conditions peculiar to the portion of the field or zone in which the same is found. Denies that, with the increase in the flow of gas through and/or out of any well or wells penetrating any zone of said oil field above a ratio of 2500 cubic feet of gas to a barrel of oil, the proportionate recovery of the oil in the sand of such zone is reduced, or that the extent to which the ultimate recovery of oil in the sand is reduced [fol. 133] varies with the increase in the rate of flow of gas or that as to any well or wells of any of these answering defendants the ultimate amount of oil recovery would be increased by any decrease in the ratio of gas produced from any well to the amount of oil produced from such well. Alleges that none of these answering defendants has sufficient information or belief upon the subject to answer the allegations of paragraph 8 of said complaint next denied, and placing its denial upon that ground denies that in some or

any instances the ultimate loss of oil recovery from any well or any zone in said Santa Fe Springs oil field has been double or less than what the loss of oil would be were a lower ratio of gas discharge maintained from all or any of the wells penetrating said zone. Alleges that the amount of oil ultimately recoverable from any oil and gas well penetrating any zone in said Santa Fe Springs oil field is directly in proportion to the quantity of gas produced except where gas is being produced from such oil well in quantities exceeding a reasonable proportion to the amount of oil produced from such well. Alleges that what is a reasonable proportion of natural gas to the amount of oil produced from the same well varies widely in different parts of said field and in different parts of the same zone therein, and varies with each well within said zone pro- [fol. 134] ducing oil and gas with the age of the well, and usually changes frequently as the well becomes older. Alleges that no well-defined or definite rule or rules have yet been discovered or known to man by which the gas-oil ratio which will produce the largest ultimate recovery of oil can be determined in advance. Alleges that such a gas-oil ratio can only be determined by experimentation upon each separate well in said field, which always involves careful, skillful and constant attention, regulation and adjustment of the flow bean. Alleges that such experimentation is dangerous and hazardous to the life and flow of the well in that it has frequently happened in said field and in other fields having similar conditions that where the oil and gas flow has been diminished the relative quantity of gas produced has increased and the quantity of oil produced has decreased and that attempts to regulate the gas-oil ratio have resulted in increasing the ratio of gas to oil in many instances and in many other instances where the quantity of oil flowing from any oil well has been artificially reduced it is not possible later to increase the flow of oil therefrom to its original production just prior to such change or to any appreciable degree, and in many other instances have resulted in destroying the well entirely. Alleges that there are many and various theories and ideas of control of the gas-oil ratio, but that none of them are well-defined enough [fol. 135] so that they may be considered as correct or accepted within the said industry.

Alleges that no natural gas is being produced from any well in Santa Fe Springs oil field by any of these answering defendants, or (as each of these answering defendants is informed and believes and on that ground alleges) from any oil well or wells in said oil field by others, in any quantity exceeding a reasonable proportion to the amount of oil produced from the same well or wells, or in any quantity more than is reasonably and necessarily required in the production of oil therefrom in accordance with the best scientific methods and appliances known to the industry and with the general and long existing custom and practice within this state and also in accordance with the recognized rights of each producer and/or operator.

9. Alleges that each and all of the zones in said Santa Fe Springs oil field referred to in the complaint contain oil and gas in liquid form as a single fluid or substance, as aforesaid, and that each and every withdrawal of gas produces both oil and gas in definite proportion, one to the other, varying with each well, and varying from time to time, and that each and every withdrawal of gas and/or oil necessarily reduces the supply, but denies that each and/or every withdrawal of oil and/or gas by one operator [fol. 136] through a well entering the sand of any one of said zones reduces the supply available to each other operator of a well into said zone or reduces the supply of any other operator of a well into said zone except within the immediate vicinity, or increases the difficulty of each operator of a well into said zone in obtaining oil and gas except in the immediate vicinity, or does or will reduce the gas pressure in the said zone throughout the whole of said zone or to any extent except in the immediate vicinity of the well from which such withdrawal occurs, or that each and every or any withdrawal of oil and/or gas by any of these answering defendants or any other operator within said field through a well entering the sand of any of said zones results in such operator obtaining an undue proportion of the oil and gas in such zone or in any injury to such zone or structure or unreasonable interference with the operations or production of oil or gas of any owner and/or operator having the right to penetrate the said zone and withdraw oil and/or gas therefrom. Denies that the alleged or any unreasonable waste of gas through any well entering the

sand in any zone owned or operated by any of these answering defendants or others in said field has been, is, or will be, a continuing or any damage or injury to any operator having the right to penetrate said zone and/or withdraw oil and/or gas from said zone or to the people [fol. 137] of the state of California, or that the people of the state of California have any interest whatever in the Santa Fe Springs oil field or any oil and/or gas contained therein or produced therefrom.

10. Alleges that none of these answering defendants have any information or belief upon the subject sufficient to enable them or any of them to answer the allegations of paragraph 10 of said complaint, and placing each of their denials on that ground denies each and every allegation therein set forth except that on Exhibit A annexed to said complaint there is located each of the parcels and wells belonging to each of these answering defendants other than those of the defendant Wilshire Annex Oil Co. Alleges in this connection that the only producing wells of these answering defendants are as set forth in the following schedule:

Defendant	Zones producing from
Ambassador Petroleum Co....	Meyer and Hathaway.
Bandini Petroleum Company.	Bell, Meyer, Buckbee and O'Connell.
Commodore Petroleum Company	Meyer.
Wilshire Oil Co., Inc.....	O'Connell and Hathaway.
Wilshire Annex Oil Co.....	O'Connell and Hathaway.

[fol. 138] 11. Admits that the gas pressure has been so depleted and dissipated in the Foix, Bell and Meyer zones that oil is produced from each of said zones only by pumping, but in this connection alleges that the natural gas in each of said zones was not unreasonably wasted, but was utilized in producing therefrom large quantities of petroleum oil and gasoline which would not otherwise have been produced and from which owners and/or operators of wells within said field received millions of dollars, and by which the taxable wealth of the state and its municipalities and subdivisions was greatly increased, and that the value of said oil and gasoline so produced was many times the value

of the natural gas which escaped. Denies that in the sands of each or any of the other zones named in paragraph 11 of the complaint there is any natural gas except such natural gas as exists in liquid form as a component part of the oil in said sands forming a single substance or liquid which is under high pressure, which moves the oil in the vicinity of each well penetrating such zone to such well and is further utilized in lifting the oil and gas to the surface of the earth so as to discharge the same with great force at the surface through and out of such well into appropriate and suitable pipe lines or other receptacles. Alleges that none of the oil produced from any of the wells operated by any of these defendants in said field can be produced with-
[fol. 139] out the production of natural gas as a necessary and inevitable concomitant, and that the quantity of gas which comes out of each of said wells which is operated by each of these answering defendants in the production of oil is a reasonable, and not a wasteful, quantity of gas so to be produced. Alleges that it is not, has not been, and will not be, possible for any of these answering defendants to operate any wells now, heretofore or hereafter owned and operated by them, respectively, and to produce oil therefrom, without the production of natural gas in reasonable quantities as a necessary concomitant.

12. Denies that there is now being unreasonably wasted, blown, released or allowed to escape, into the air by any act or acts, omission or omissions, sufferance or insistence of all or any of these answering defendants, either severally or jointly or otherwise, a large or any quantity of natural gas. Alleges that these answering defendants, respectively, are producing from wells operated by them, respectively, in said field oil of the approximate amounts and of the reasonable market value set opposite their respective names, to wit:

Defendant	Barrels of oil per diem	Approximate market value
Ambassador Petroleum Co.	5172	$6,982.20
Bandini Petroleum Company	13591	18,347.85
Commodore Petroleum Company	251	338.85
Wilshire Oil Co., Inc.	9088	12,268.80
Wilshire Annex Oil Co.	4150	5,602.50

[fol. 140] none of which would it be possible for said companies, respectively, to produce therefrom without the production of gas in reasonable quantities, and that each of them is now producing therefrom natural gas only in such quantities as do not exceed a reasonable proportion to the amount of oil produced from each of their respective wells. Alleges that the use and utilization by each of these answering defendants of such reasonable quantities of natural gas in producing said oil is a useful and beneficial use thereof and is not a waste, or an unreasonable waste, thereof. Alleges that in addition to this useful and beneficial utilization of such natural gas as each of these answering defendants, respectively, are so producing, the said natural gas thereafter is further utilized in the manufacture of casing head gasoline and for fuel purposes in the operations of these answering defendants, respectively. Alleges that the aggregate value of the casing head gasoline so produced daily is approximately $4,000.00. Alleges that after this further utilization of said natural gas by these answering defendants, respectively, there are no additional means available to any of them for any further utilization, conservation or disposal of the remaining dry gas. Alleges that none of said resulting and remaining dry gas has any market value whatever, nor is there any demand whatever therefor, and notwithstanding that these [fol. 141] answering defendants have made diligent efforts so to do, none of them have been able to sell or even give away the same. Alleges that by reason of the premises each of these answering defendants has been compelled, in the reasonable and proper operation of each of the wells operated by them, respectively, to release or permit to escape into the air the dry natural gas so resulting and left over after making the aforesaid useful and beneficial utilizations thereof. Denies that Exhibit AA annexed to and made a part of the complaint is a list of any well or wells of any of these answering defendants from which gas is being unreasonably wasted, or that any of these answering defendants is unreasonably wasting any natural gas from any well shown thereon, either in the amount set forth thereon or any part thereof, or otherwise, or at all, or that any of these answering defendants is in charge of such or any unreasonable waste of natural gas from said or any well or wells in said Santa Fe Springs oil field. Denies that

an aggregate of more than 400 million cubic feet of natural gas, or any part thereof, either before or after the removal of the gasoline therefrom, is being unreasonably or at all wasted each day or has been unreasonably or at all wasted during all or any part of the last thirty days, or that all or any of the defendants threaten to continue, unreasonably or at all, to waste any natural gas indefinitely or otherwise or at all.

[fol. 142] 13. Denies that all or any of these answering defendants threaten to, or that unless restrained by the injunction of this court they or any of them will, continue to unreasonably, or at all, waste any of the gas from any of the sands in any of the zones of said Santa Fe Springs oil field, either as alleged in the complaint, or otherwise or at all, or that by reason of any acts, omissions, sufferance or insistence of any of them, the gas pressure in any of said sands would be unreasonably depleted, or that any other owner or owners of land within said Santa Fe Springs oil field are, or will be, deprived of the propulsive force of said gas in bringing oil to or through any well or wells drilled or to be drilled into the sands of the same zone, or will be deprived of their, or any of their, share of the natural gas and/or oil in the sands of said zone, or are or will be injured or damaged in any respect whatever. Denies that the people of the state of California in whole or in part, have been, are or will be damaged or injured either as alleged in paragraph 13 of the complaint, or otherwise or at all, by any act, omission, sufferance or insistence of any of the defendants. Denies that any unreasonable waste, or any waste, of gas exists or will continue or is threatened, all by any act, omission, sufferance and/or insistence of all or any of these defendants, or that any gas drawn from any of the [fol. 143] wells of any of these defendants has been, is now, or will be, or is threatened to be unreasonably discharged or blown or wasted into the air, or that the gas throughout or in any of the sands or any sand of the said zones, or any of them, has been or will be depleted, lost or wasted so that such gas will no longer propel the oil in the sands of such zone toward and/or through any well or wells penetrating the said zone, by reason of any unreasonable waste of gas by all or any of these defendants. Denies that all or any of these defendants for thirty days next last past, or any part

thereof, have been or are now wilfully or otherwise, permitting natural gas to wastefully escape into the atmosphere from any well or wells in said Santa Fe Springs oil field mentioned in Exhibit A annexed to the complaint or otherwise or at all.

14. Denies each and every allegation contained in paragraph 14 of said complaint.

15. None of these answering defendants has any information or belief upon the subject sufficient to enable them or any of them to answer the allegations of paragraph 15 of the complaint, and placing their denial upon the ground denies each and every allegation therein contained.

16. Denies each and every allegation contained in paragraph 16 of the complaint.

17. Denies each and every allegation contained in paragraph 17 of the complaint.

[fol. 144] 18. Denies each and every allegation contained in paragraph 18 of said complaint.

19. Denies that natural gas produced from Santa Fe Springs oil field has been used in the generation of light, heat or power, or used for other industrial purposes by the people of the state of California, in the county of Los Angeles or in the city of Los Angeles, or any other city of said state in the vicinity thereof, or has been conducted through pipes or distributed or sold as a public utility prior to the year 1923, or that since that time any more than a small percentage of the natural gas produced from said field has been so used and/or conducted or distributed or sold. Alleges that the amount of natural gas produced from said Santa Fe Springs oil field which is now so used, conducted, distributed or sold, does not exceed five per cent of the natural gas produced from said field. Denies, that by the use of natural gas produced, distributed or sold as alleged in the complaint, many hundreds of thousands of the people of the state of California, or more than a very few people and within a very limited area in the vicinity of said field, have been for many years or for any period, or are now, continuously or otherwise supplied with gas for fuel, heat or other domestic purposes or for any use or purpose.

[fol. 145] 20. Denies that the fuel supplied by the natural gas obtained from any of the subsurface sand zones of the Santa Fe Springs oil field is the cheapest or best fuel known to mankind, or that it is cheaper or better than natural gas produced from other oil fields in California, or that it is materially cheaper or better than oil or fuel the grade of which there is now in storage in California approximately 110,000,000 barrels, the fuel value of which is equivalent to approximately 600,000,000,000 cubic feet of natural gas, which is about fifteen times the total consumption of natural gas for industrial uses in California in 1928. Admits that the value of the natural gas which is a component part of the oil in subsurface zones in Santa Fe Springs oil field, and neither of which can be removed without the other, is many millions of dollars, but alleges that its value is many times less than the oil which can only and must be produced therewith. Denies that the people of the state of California have any interest therein. Denies that the coming into the state of California of large sums of money or the investment of large sums of money in large manufacturing plants or in similar manufacturing enterprizes, causing a great increase in population of California and/or Los Angeles county, or that the great increase in the population of said state and county since the discovery and bringing under [fol. 146] control of the gas deposits in said Santa Fe Springs oil field, was caused thereby in whole or in part to any material or appreciable degree, but was caused largely and mainly by other factors, and the same condition existed prior to the discovery of the Santa Fe Springs oil field. Denies that there have been any gas deposits in Santa Fe Springs oil field except as a component part of the oil found in the zones of said field. Alleges that the cost of drilling wells into the sand zones of said field from which oil and gas are now being recovered is so great and the cost of operating them after completion so high, that it would be uneconomic and unprofitable to so drill and operate them or any of them solely for the purpose of the recovery of the gas available therefrom; that gas could not profitably or at all be produced therefrom separately or at a cost less than that of artificial gas or without the concomitant production therewith of the natural flow of oil therefrom. The people of the state of California and of the county of Los Angeles and of the cities in the vicinity thereof, are not dependent

for fuel upon natural gas produced from Santa Fe Springs or elsewhere within the state to any substantial or material degree; they for many years have had available, and still have available and use, fuel oil, steam and hydroelectric energy, artificial gas, coal and other fuels. For most pur- [fol. 147] poses and uses the cost to the consumers within said areas of fuel, oil and electric energy is substantially the same as natural gas. Substantially all industrial plants within said area using natural gas are equipped to use fuel oil or electric power and are not dependent upon natural gas for fuel. The use of natural gas for industrial purposes is subject to the constant hazard of shutoffs on momentary notice. Substantially all industrial use of natural gas within said area for fuel was not commenced until after the use of fuel oil and/or electric energy, but has not superseded to any large degree the use of fuel oil and/or electric energy. Consumers of gas in Southern California were supplied entirely with artificial gas until 1914, and the substition of natural gas for artificial gas to the consumers of gas within said area was not finally made until 1927, practically none of which said natural gas is now or has ever been supplied from Santa Fe Springs oil field. Prior to 1927 and subsequent to 1914, consumers of gas in the cities in the vicinity of Santa Fe Springs oil field were supplied with a mixture of artificial gas and the natural gas, practically none of which natural gas is now, or has ever been, supplied from Santa Fe Springs oil field. Denies that any money invested in manufacturing and/or the production of electric power on any property in or near said Santa Fe [fol. 148] Springs oil field is wholly or at all dependent for their, or any of their, continued preservation or preservation, or for permanent value or value of their, or any of their property upon the natural gas supply from Santa Fe Springs oil field, or from any other source, and denies that the location and/or establishment of all or any of them in the vicinity was due in large measure or to any material degree, or at all, to the presence of natural gas being available from said Santa Fe Springs oil field, or that without the presence of such natural gas in said field, all or any of such enterprizes cannot operate at a profit, or that in the event all or any of the supply of natural gas should be exhausted, all or any of such enterprizes would be compelled to stop operations, or that thousands or any number of

citizens of the state of California would be unable to find employment at remunerative wages. Alleges that the granting of the relief prayed for in whole or in part would so curtail the production of oil, gasoline and other petroleum products, as to practically stop operations by these answering defendants and many other owners and operators in said field, upon their respective properties as to destroy materially the value of their properties and investments, and will also impair and affect the operations and investments of others in said field, and will much more ma- [fol. 149] terially affect the enterprizes, investments and the people of the state than is alleged in paragraph 20 of the complaint. Said or any curtailment in the production of oil will materially affect the price of fuel oil, gasoline and other petroleum products within said area and to the many consumers thereof, in an aggregate amount many times the value of the alleged loss of natural gas referred to in paragraph 20, and will affect the investments and people employed in the industrial and other enterprizes and properties in the vicinity of said field referred to in paragraph 20, to a degree greatly in excess of the threatened loss alleged in said paragraph 20.

21. Alleges that while inhabitants in the city of Los Angeles and other cities in the vicinity of Santa Fe Springs oil field have in recent years (but not otherwise) used increasing quantities of natural gas for fuel, the same has been secured almost entirely from sources other than Santa Fe Springs oil field and the total use of natural gas produced from Santa Fe Springs oil field by such inhabitants does not exceed five per cent. of the production of natural gas from such field. If the production of oil from Santa Fe Springs oil field is curtailed to the extent of the present commercial consumption of natural gas produced from such field, each of these answering defendants will have to close down all of its respective wells, and other defendants will have to do likewise, and these answering defendants [fol. 150] and other defendants will suffer almost total loss of the use and value of their properties. Alleges that inhabitants using natural gas for fuel in the city of Los Angeles and other cities in the vicinity of Santa Fe Springs oil field have, in many instances, constructed and equipped their houses with a view to the use of natural gas, but al-

leges that most of such inhabitants did so while artificial gas was being supplied to them and before straight natural gas was supplied to them, and many of such houses have been constructed and equipped for the use of other fuels. Denies that any houses constructed and/or equipped with a view to the use of natural gas will have to be equipped differently before other kinds of fuel can be used. Alleges that none of these answering defendants has information or belief sufficient to enable them or any of them to answer all or any of the remaining allegations of paragraph 21 of said complaint, and placing their denials upon that ground each of them denies each and every allegation therein contained.

22. Denies that any of the public buildings or institutions referred to in paragraph 22 of the complaint have been equipped for the use of natural gas as a fuel, relying upon the permanent supply of natural gas, but alleges that almost all of said buildings and institutions were equipped for the use of gas before natural gas was supplied thereto as a [fol. 151] fuel, and were and are equipped to burn artificial gas as a fuel without any change in equipment, and were and are also equipped to burn fuel oil and are not dependent upon the supply of natural gas as a fuel. Denies that the cost of maintaining any of said public buildings and institutions has been materially lessened or the comfort of any of their occupants has been materially increased by the additional or substituted use of natural gas therein as a fuel.

23. Denies that the wealth of the state of California or its revenues derived from taxation has been greatly or materially increased by reason of any facts alleged in paragraph 23 of the complaint or, in the event that the supply of natural gas is no longer available, will be materially or correspondingly curtailed, or that the presence or use of natural gas has materially increased the population or the manufacturing plants or the wealth of the state of California or its revenues derived from taxation, either as alleged in paragraph 23 of the complaint or otherwise or at all. Denies that the natural gas supply in any of the zones of Santa Fe Springs oil field is not being properly husbanded or protected or that any act or omission, suffer-

ance or insistence of any of these answering defendants or of other defendants is causing any unreasonable depletion or drain upon said natural gas supply, or that said natural [fol. 152] gas supply which is being produced from said field is not being put to a beneficial and useful purpose.

24. Denies each and every allegation contained in paragraph 24 of the complaint.

25. Denies any of these answering defendants or others in said field are permitting any well or wells to flow freely or without sufficient back pressure at the surface, or that the recoverable supply of oil and/or gas in any of the zones of said field has been, is now or will be, materially or unreasonably reduced or affected by any of the matters referred to or alleged in paragraph 25 of the complaint, or that there has been any encroachment of edge water into any zone in said field caused by permitting any well or wells to flow freely or without sufficient back pressure at the surface.

26. Denies each and every allegation contained in paragraph 26 of the complaint except as herein admitted or alleged.

27. Admits that the pressure of the natural gas constituting a component part of the oil and gas liquid in each of the zones in which each of the defendants' wells is drilled causes the oil and gas to flow to the surface, but denies that the withdrawal of gas from any well in any zone tends to destroy the flow of oil toward or through such well, but on the contrary alleges that such pressure is utilized and [fol. 153] is necessary to increase the flow of oil toward such well. Denies that the withdrawal of gas from any well in any zone affects the flow of oil toward or through all wells bored into the same sand zone or any wells bored into the same zone except those in the immediate vicinity or within an area of four or five acres surrounding such well. Denies that any existing or threatened waste of gas from any well penetrating any zone in said field will impair or diminish the pressure of gas so that it will no longer force oil to the surface in any of the wells drilled into said zone throughout the said Santa Fe Springs oil field or to any extent except in the immediate vicinity of the well, and

denies that any other lessor, lessee or operator will thereby be deprived of any right to produce oil and/or gas for beneficial or any purpose from any zone underlying any property of such other lessor, lessee or operator, or otherwise or at all. Denies that any existing or threatened waste of gas from any well penetrating any zone in said field will cause any other lessor, lessee or operator to threaten, or that any other lessor, lessee or operator has threatened, to permit, unreasonably or otherwise, the natural gas therefrom to waste into the open air either before or after removing gasoline therefrom. Denies each and every of the remaining allegations of paragraph 27 of said complaint.

[fol. 154] 28. Denies that any greater value or use or benefit can or should be derived from the natural gas which is being protected by all or any of these defendants than by first using this propulsive power in the zone sands to force the oil to, through and out of the wells and after removing gasoline therefrom further utilizing the heat units of said natural gas for fuel in the production of oil, gasoline and other petroleum products in said field. Alleges that there is no other beneficial use or value for said natural gas produced by any of these defendants. Alleges that natural gas produced from said field must be used as produced; the cost of storage greatly exceeds the value of such as could be stored and saved or conserved for future use.

29. Denies each and every allegation contained in paragraph 29 of said complaint.

Further answering said complaint, alleges that none of these defendants can produce oil from any of their respective wells without the production of gas, and that the physical and other conditions at, within and surrounding each of their respective wells are such that gas production is a necessary and unavoidable incident to the production of oil, and serves its most useful and beneficial purpose as a propulsive force in flowing oil to and out of each oil well within said Santa Fe Springs oil field, and that without [fol. 155] the use it is impossible to produce oil from any of the oil wells operated by any of these defendants without at the same time producing natural gas. Alleges that the quantity of natural gas which is so produced and which is

so utilized in producing oil from each of the wells of these defendants does not exceed a reasonable proportion to the amount of oil produced from the same well or wells, and that none of said natural gas so produced is unreasonably or at all wasted but serves the useful, beneficial, necessary and indispensable purpose of producing oil from each of the producing wells of each of these answering defendants. None of these answering defendants is producing from any of its respective wells an undue or unreasonable amount of oil and/or gas or is taking from any sand penetrated by any of its respective wells more than its just share or proportion of the oil and/or gas in any such zone. Each of their said wells was drilled with skill and is equipped in accordance with the best known methods, appliances and equipment, and each of them has been and is equipped with casings of sufficient strength, all safety devices that are necessary and in accordance with the highest and best methods known to the industry. Each of said wells has been so drilled, completed and operated, and is so operated, as to prevent, as far as possible, damage to underground [fol. 156] petroleum and gas deposits from infiltrating water and other causes and loss of petroleum and/or natural gas, and so as to protect petroleum and gas deposits from damage by underground water, and so as to prevent the escape of water into underground formations, and so as not to interfere with, injure or damage the interests or rights of neighboring property owners, lessees or operators. The major and primary value of the oil and gas deposits in each of the zones in Santa Fe Springs oil field is in the oil content thereof which is of far greater value than the gas content. All of the oil content can be, has been and is, preserved and utilized for commercial purposes. The current market value of each average barrel of crude oil produced from said wells is $1.35 per barrel. All of the natural gas which is utilized in flowing oil from each of the wells of these defendants is further utilized by extracting the gasoline therefrom, and the resulting dry gas is used for fuel purposes, drilling, pumping and operating its oil wells and for artifically flowing oil therefrom, and for fuel purposes in operating the casing head gasoline plant and refinery of the defendant, Wilshire Oil Co., Inc. There is no other useful or beneficial purpose to which all or any of

the remaining dry gas can be put, and no further value, utility or use can be derived therefrom, and the same has no market or other value and cannot even be given away. [fol. 157] It cannot be stored except at a cost far in excess of the value of the portion thereof which could thereby be conserved or saved for future use.

31. Further answering said complaint, if any of these answering defendants is enjoined or prevented from producing such quantities of natural gas in each of its wells as does not exceed a reasonable proportion to the amount of oil produced from the same well, each of these answering defendants will to that exent be irreparably injured and damaged and deprived of its property and the use and enjoyment thereof, without due process of law and without just or any compensation, in violation of the Fourteenth Amendment of the Constitution of the United States, and in violation of sections 1, 13 and 14 of Article I of the Constitution of California. In this connection each of these answering defendants alleges that if the gas-oil ratio of any of its wells is reduced through the injunctive process of this court, or otherwise, below such reasonable proportion of natural gas to the amount of oil produced therefrom, that thereby the amount of oil being produced, as well as the ultimate recovery of oil from such well, will be greatly reduced, and there is great danger that if any such order of this court should be reversed or an attempt should later be made to increase or restore the production of oil from any such well, that it will be impossible so to do. Based [fol. 158] upon the experience of operators in said field, each of these answering defendants is informed and believes, and upon that ground alleges that it will be impossible in the event just named to later increase or restore the production of oil from such well. Each of these answering defendants further alleges that the reduction of the amount of natural gas which is permitted to be produced from any of the oil and gas wells of each of these defendants, will reduce correspondingly the daily production of oil therefrom and the ultimate total recovery of oil therefrom, and as the amount of such flow of gas is reduced, the rate of recovery of oil and the ultimate recovery of oil from such well will be in a constantly increasing proportion, and that any material reduction or interference in the flow of

oil from any well through the curtailment or prohibition of the production of natural gas which is permitted from such well, will jeopardize and endanger all future production from said well to a material and substantial degree, and may entirely destroy the use and value of such well. Each of these answering defendants alleges that if they respectively are prohibited or enjoined by this court from permitting any of the resulting dry gas hereinabove referred to, after making the utilizations thereof hereinabove specified, to escape or to be released into the air, as a result thereof each of these defendants respectively are forbidden [fol. 159] and prohibited in effect from producing any oil whatever from their respective wells, and that the amount of the oil production from their respective wells will be curtailed and diminished in the proportion as they are prohibited or restrained from permitting such resulting dry gas to escape or be released into the air. If they are prohibited or enjoined from permitting more than 300 cubic feet of natural gas produced from any well for each barrel of oil produced from such well to escape or be released, it will destroy the future producing of oil from such well.

By reason of each of the foregoing facts, each of these answering defendants will be greatly and irreparably damaged and injured by any order or judgment which may be made by this court requiring a reduction in the flow of oil or gas from any of their respective wells, and the property of each of them will be taken and destroyed to the extent of such curtailment or prohibition in violation of the Fourteenth Amendment of the United States Constitution, and sections 1, 13 and 14 of the California Constitution, the protection of which each and all of these answering defendants here and now invokes.

32. Further answering said complaint, each of these answering defendants alleges that the defendants, Standard Oil Company of California, Union Oil Company of Cali- [fol. 160] fornia, General Petroleum Corporation of California, Shell Oil Company, Associated Oil Company, Richfield Oil Company of California and The Texas Company, jointly or severally (the exact apportionment being unknown to any of these answering defendants) made and

executed contracts with various pipe line companies, gas companies and others distributing and/or selling and/or using natural gas for commercial, industrial and/or domestic purposes, by the terms of which they have secured a market for one or more such purposes for all, or substantially all, of the natural gas produced from Santa Fe Springs oil field for which there is any demand or market, or for which there will be any demand or market for several years, and as these answering defendants are informed and believe, for a period of five or ten years, and during the productive life by natural flow of the wells in said Santa Fe Springs oil field. Said contracts and each of them are still in full force and effect. Each of these answering defendants is informed and believes, and upon that ground alleges that the amount of natural gas which will be delivered or marketed under these contracts will provide an outlet for the major portion, or at least a substantial portion, of the natural gas which is being produced, and will be produced from the various wells owned and/or operated by the [fol. 161] seven companies above named, which are the largest producers and/or distributors of oil in California, and each of which companies have large resources and assets. None of these companies just named, or any of the owners or operators of wells penetrating any of the zones mentioned in the complaint, are producing natural gas alone or otherwise than as a mere incident to the production of oil. Approximately ninety per cent (90%) of the entire producing area in the Santa Fe Springs oil field is owned and/or operated by the seven defendants above named. Upon the property immediately adjacent or adjoining the lands owned and/or operated by each of these answering defendants is one or more offset wells located immediately adjacent to, and in many instances on, the land immediately surrounding and adjacent to the land upon which these answering defendants respectively have one or more oil wells penetrating the same oil and gas zones, from which these answering defendants respectively are producing and/or expect to produce oil and gas in reasonable proportions as aforesaid. None of these answering defendants has made or executed any contract or contracts, or has been able to secure any such contract or contracts for gas outlets such as are above described, or any contract or contracts or out-

let for any of the natural gas which they or any of them are producing and/or will necessarily have to produce if [fol. 162] they are respectively to continue in the business of producing oil, except that the defendant, Commodore Oil Company, has such a contract for one-half of the resulting dry gas produced from its wells, known and described as Babonet Nos. 1 and 2 and Landl Nos. 1 and 2, which wells have in the past produced oil and gas from the Meyer sand zone of said field, but none of which are now producing any oil or gas. Two of said last mentioned wells have been abandoned and it is improbable that either of the other two hereafter will produce any oil or gas, due to unavoidable mechanical difficulties. Each of these answering defendants has made diligent efforts to secure a market or outlet for some commercial use or purpose of the resulting dry gas which each of them now have and expect to have from such oil wells as they are and will respectively operate and produce oil and gas from, but have been unable to find any market or any outlet or any useful or beneficial purpose to which any of said resulting dry gas can be put. They have offered even to give such resulting dry gas away to several of the gas companies distributing and selling gas in the city of Los Angeles and the neighboring cities and communities, but have been unable so to do.

If all or any of the seven defendants above named, or [fol. 163] any other defendant having such a gas contract or commercial outlet as is referred to in the preceding paragraph, are permitted to utilize natural gas produced from said field for such purpose, they will thereby be enabled to produce oil in quantities greatly in excess of that which any of these answering defendants can produce and possibly when none of these answering defendants can produce any oil whatever by reason of not having any such gas contract or contracts or outlets, and such of them as own or operate property adjacent to and/or immediately surrounding property of any of these answering defendants from which they are now producing oil and gas will so drill and operate their wells on such adjoining or surrounding premises so as to obtain a material advantage over each of these answering defendants and in particular will be enabled to, and will, drain the oil and/or gas from the lands now owned or leased by these answering defend-

ants, respectively, and will be enabled to, and will, thereby obtain an undue and unjust proportion of the oil underlying said lands, and will thereby establish new or larger channels toward the well or wells of such other defendants or operators on such adjoining and surrounding lands so as to injure materially and irreparably the oil productive capacity of the wells of each of these answering defendants located in the vicinity thereof. By reason of the premises [fol. 164] each of these answering defendants will be thereby denied the protection of each of the provisions of the United States and California Constitutions last above referred to, the protection of which each of these answering defendants hereby invokes, and in addition thereto each of these answering defendants will be thereby deprived of its liberty and property, in violation of the Fourteenth Amendment of the Constitution of the United States and of sections 1, 13 and 14 of article I of the California Constitution.

33. Further answering said complaint, each of these answering defendants alleges that the same conditions complained of in the complaint and alleged to be existing in Santa Fe Springs oil field, particularly the alleged unreasonable waste of gas, prevail and exist in each and every other oil and gas field within the state of California and have so prevailed and continued for some years and are in accord with the well established and long existing custom and practice in the various oil and gas fields in this state and are in accord with the established rules of property in this state, in reliance upon which each of these answering defendants have invested, in good faith, large sums of money in acquiring leases, drilling oil wells, constructing derricks, buildings and other equipment thereon. No suit has been commenced by plaintiffs to enjoin or restrict such practices in any other oil and gas field in the [fol. 165] state of California, in every one of which one or more of the seven defendant oil companies above named are operating or own oil and gas wells. No suit such as the present one has been threatened as to such operations in any other of the oil and gas fields of California. No proceedings under section 8d of the statute under which this suit is brought have been commenced by plaintiffs or

any officer in the Department of Natural Resources of the state of California against such practices in any other oil and gas field in California other than the Ventura Avenue oil and gas field, in which proceedings the Supervisor of Oil and Gas of said department made an order by the terms of which it is provided:

"* * * No lessor, lessee or operator shall deliver any gas produced from any well or wells in the Ventura Oil Field for transportation out of said field into Oil and Gas District No. 1 in excess of one hundred twelve million, five hundred thousand (112,500,00-) cubic feet a day during the period from the 15th day of September to the 15th day of March next thereafter, or in excess of eighty-seven million five hundred thousand (87,500,000) cubic feet a day from the 15th day of March to the 15th day of September next thereafter."

Gas District No. 1 includes all of the counties of Los Angeles and Orange. By reason of said provision in said [fol. 166] order, four of the seven defendants above named who are operating oil and gas wells in said Ventura oil field and who are producing, as these defendants are informed and believe and on that ground allege, ninety per cent. or more of the natural gas produced from said field are enabled to provide the commercial needs of consumers of natural gas in said Gas District No. 1 and particularly in the city of Los Angeles and other cities in the vicinity of Santa Fe Springs oil field, all of whom could be supplied with natural gas from Santa Fe Springs oil field but for said provision of said order. By reason of the said acts and omissions of plaintiffs and of the Department of Natural Resources and of the officers therein in the enforcement and administration of the statute under which this suit is brought, these answering defendants and other lessors, lessees and/or operators in Santa Fe Springs oil field are being unjustly and oppressively discriminated against and each of these answering defendants is being deprived of the guarantees of the United States and California Constitutions in this and the preceding paragraph referred to.

34. Further answering the complaint, each of the parcels of land shown upon Exhibit A annexed to the complaint

and made a part thereof and alleged therein to be owned by these answering defendants, respectively (with the exception of one parcel owned by the defendant Wilshire [fol. 167] Annex Oil Co. described as follows: The West one-third (1/3) of Lot Four (4) and all of Lot Five (5) in Block Eighty-eight (88), Santa Fe Springs, as per map recorded in Book 26, Page 37 et seq., Miscellaneous Records of Los Angeles County, California, which is owned by said company in fee simple) and upon which any oil and gas well or wells are shown, is held and possessed and operated by the respective answering defendant whose name is shown on Exhibit A and who is alleged therein and in said complaint to be the owner thereof under a separate lease executed by the owner or owners thereof and duly and regularly assigned (where not originally executed by such answering defendant) to such answering defendant. The name of the answering defendant who is the owner of each lease or in possession of the leased premises, a description of said leases by name under which the lease is known, a description of the leased premises, the term of the lease and the date of commencement thereof, the recordation reference, and the name of the lessor or lessors therein named, are set forth in the following schedule:

A. Ambassador Petroleum Co.

1. Baker Lease

The North half of the Northwest quarter of Section 8, [fol. 168] Township 3 South, Range 11 West, S. B. B. & M., excepting that portion occupied by right of way of the Santa Fe Railroad track and the portion west thereof; also the Easterly 55 acres of the South half of the Southwest quarter of Section 5, Township 3 South, Range 11 West, S. B. B. & M. (the portion of this property shown on said Exhibit A being subleased to A. L. Irish, and acquired from him by mesne assignments by the Buckeye Union Oil Company), for a term of 20 years, commencing February 25, 1919, and thereafter so long as any hydrocarbon substances may be produced in paying quantities, recorded in Book 126, Page 14 of Leases, Records of Los Angeles County, California, John S. Baker and Julia M. Baker, his wife, lessors.

B. Bandini Petroleum Company

1. Off Lease

All of Block B of Santa Fe Springs, as shown by a map of a portion of Santa Fe Springs, as per Book 107, Page 234 of Leases, Records of said Los Angeles County, and containing approximately 12.91 acres; also the N ½ of West one-half of Lot or Block 22 in Bannister's Addition to Santa Fe Springs, adjoining the above described Block B on the East, as shown by map as per Book 23, Page 60, [fol. 169] Miscellaneous Records of Los Angeles County, California, and containing approximately two acres, for a term of 20 years, commencing August 21, 1920, and thereafter so long as any hydrocarbon substances may be produced in paying quantities, recorded in Book 141, Page 124 of Leases, Records of Los Angeles, California, Grace M. Off, lessor.

C. Commodore Petroleum Company

1. Babonet Lease

Lot 23 of Bell & Carlton's Santa Gertrudes Acres in the County of Los Angeles, State of California, as per map recorded in Book 10, page 73 of Maps in the office of the County Recorder of said County, for a term of 20 years, commencing April 15, 1920, and thereafter as long as any hydrocarbon substances may be produced in paying quantities, recorded in Book 132, Page 226 of Leases, Records of Los Angeles County, California, Charles Babonet, lessor.

2. Landl Lease

Lot 22 of Bell & Carlton's Santa Gertrudes Acres in County of Los Angeles, State of California, as per map recorded in Book 10, page 73 of Maps, in the office of the County Recorder of said County, for a term of 20 years, [fol. 170] commencing April 15, 1920, and thereafter so long as any hydrocarbon substances may be produced in paying quantities, recorded in Book 139, Page 127 of Leases, Records of Los Angeles County, California, Frank Landle, lessor.

D. Wilshire Oil Co., Inc.

1. Baker Lease

East 18.81 acres, less the road of Southeast quarter of Southeast quarter of Section 6, Township 3 South, Range 11 West, S. B. B. & M., County of Los Angeles, State of California, for a term of twenty years, commencing April 27, 1920, and thereafter as long as any hydro carbon substances may be produced in paying quantities, recorded in Book 136, Page 83 of Leases, Records of Los Angeles County, California, John S. Baker and Julia M. Baker, his wife, lessors.

2. Cecelia Lease

Lots 13 and 14, in Block 83, Townsite of Santa Fe Springs, Los Angeles County, California, as per map recorded in Book 26, Pages 37 et seq., Miscellaneous Records of said County, for a term of twenty years, commencing May 24, 1920, and thereafter as long as any hydrocarbon substances may be produced in paying quantities, recorded in Book 4872, Page 267 of Official Records of Los Angeles [fol. 171] County, California, A. Wardman and Bonnie Wardman, his wife, lessors.

3. Fraser Lease

That portion of the Northwest quarter of the Southwest quarter of Section 6 in Township 3 South, Range 11 West, S. B. M., in the Rancho Santa Gertrudes, County of Los Angeles, State of California, as per map recorded in Book 1, Page 502, of Miscellaneous Records of said County, lying west of the 50 foot strip of land conveyed to the Long Beach, Whittier and Los Angeles County Railroad Company, by deed recorded in Book 378, Page 280 of Deeds, Records of said County, except the west 30 feet thereof reserved for roads, railroad, ditches and water courses,

for a term of twenty years, commencing December 14, 1921, and thereafter as long as any hydrocarbon substances may be produced in paying quantities, recorded in Book 744, Page 336 of Official Records, Los Angeles County, California, Allen B. Fraser and Cora S. Fraser, his wife, lessors.

4. Meyer Lease

That portion of Lot 2 of Tract No. 3152 as recorded in Map Book 36, pages 53 to 57 inclusive, records of Los Angeles County, California, described as follows: Beginning at the Northwesterly corner of said Lot 2, thence S. [fol. 172] 0° 31′ 30″ W. along the Westerly line of said lot 2, 2610.00 feet to a point; thence S. 89° 29′ E. 2641.22 feet to a point in the Easterly line of said Lot 2; thence N. 0° 31′ E. along said easterly line 378.44 feet to the Northeasterly corner of said Lot 2; thence along the Northeasterly line of said Lot 2 on the following courses and distances:—N. 47° 56′ 30″ W. 17.96 feet; N. 46° 33′ W. 1269.49 feet; N. 47° 58′ 30″ W. 615.00 feet; N. 49° 58′ W. 1304.78 feet and N. 57° 49′ 30″ W. 223.69 feet to a point in the Northerly line of said Lot 2; thence N. 89° 34′ 30″ W. along said Northerly line 40.52 feet to the point of beginning, containing 94.69 acres of land, except any portion thereof included in the lines of the Anaheim Telegraph Road as now located, for a term of 20 years, commencing September 26, 1929, and thereafter as long as any hydrocarbon substances may be produced in paying quantities, recorded in Book 123, Page 155 of Leases, Records of Los Angeles County, California, Victoria Meyer Meyer, lessor.

5. Peterson Lease

Lots 10, 11 and 12, Block 87, Townsite of Santa Fe Springs, Los Angeles County, California, as per map recorded in Book 26, Pages 37 et seq., Miscellaneous Records of said County, for a term of 20 years, commencing May 3, 1922, and thereafter as long as any hydrocarbon sub- [fol. 173] stances may be produced in paying quantities, recorded in Book 1115, Page 227 of Official Records, Los Angeles County, California, A. Wardman, lessor.

6. Crawford Lease

All of Lots 2 and 3 and the easterly 2/3 of Lot 4, all being in the North Half of Block 88 of Santa Fe Springs, as the same is delineated upon the map on file in the County Recorder's office of Los Angeles County, California, as per map recorded in Book 26, Page 37 et seq., Miscellaneous Records of said county, for a term of 20 years, commencing August 29, 1925, and thereafter as long as any hydro-

carbon substances may be produced in paying quantities, recorded in Book 5172, Page 67 of Official Records of Los Angeles County, California, William W. Crawford, Ruby Fife (formerly Ruby Crawford), Gertrude Shoemaker (formerly Gertrude Crawford), and John Wesley Crawford, lessors.

7. Buckbee Lease

Lots 3, 4 and 5 in Block 89, of the Town of Santa Fe Springs, in the County of Los Angeles, State of California, as per map recorded in Book 26, Page 37, Miscellaneous Records of said County, for a term of 20 years, commencing June 3, 1929, and thereafter as long as any hydrocarbon substances may be produced in paying quantities, recorded in Book 4490, Page 102 of Official Records of Los Angeles [fol. 174] County, California, Joseph A. Buckbee and Louisa Mary Buckbee, his wife, lessors.

E. Wilshire Annex Oil Co.

1. Eagle Lease

Lots 3, 4, 5, 10, 11 and 12, in Block 83, in the Town of Santa Fe Springs, as per map recorded in Book 26, pages 37-40, Miscellaneous Records of said Los Angeles County, for a term of 20 years, commencing December 29, 1921, and thereafter as long as any hydrocarbon substances may be produced in paying quantities, recorded in Book 950, Page 13, Official Records of Los Angeles County, California, James Delos Eagle and Ida D. Eagle, his wife, lessors.

2. Koontz Lease

Lots 6, 7, 8 and 9, all in Block 83 in the Town of Santa Fe Springs, as per map recorded in Book 26, Pages 37-40, Miscellaneous Records of Los Angeles County, for a term of 20 years, commencing December 6, 1921, and thereafter as long as any hydrocarbon substances may be produced in paying quantities, recorded in Book 825, Page 136, Official Records of Los Angeles County, California, William H. Koontz and Emma A. Koontz, lessors.

[fol. 175] Note.—The Babonet and the Landl leases referred to are both leaseholds held under sublease by Com-

modore Petroleum Company from the defendant Wilshire Oil Co., Inc., each for a term ending on April 15, 1940, and *as long* thereafter as long as any hydrocarbon substances may be produced in paying quantities, which, in turn, is the owner of a leasehold estate under a lease executed by the respective lessors named in the foregoing schedule in the description of said Babonet and Landl leases. By the terms of each and all of the foregoing leases and by the terms of the instruments by which the leasehold estates of these answering defendants owning the same as per the foregoing schedule are held, each of these answering defendants is required and permitted continuously, diligently and in good faith, as long as petroleum in paying quantities can be produced therefrom, to pump and operate each and every oil and gas well thereon with the exception that the Wilshire Oil Co., Inc., Cecelia, Baker and Peterson leases by the terms of each lease provide that the lessee must pump and operate each and every well thereon to its maximum capacity. By the terms of each of said leases, the lessor is entitled to a fixed proportion of all oil and/or gas or other hydrocarbon substance produced from each well. By the terms of each of said leases it is provided that the same may be forfeited upon notice varying from thirty [fol. 176] to ninety days if the lessee fails to comply with any of the obligations therein set forth to be performed by the lessee thereunder. The names of the persons who own the interests or interest of the lessors or lessor in said leases are a- follows:

A. Ambassador Petroleum Company

1. Baker lease: John S. Baker and Julia M. Baker, United States Royalties Co., S. S. Wold, and Mrs. A. Marie Fischer.

B. Bandini Petroleum Company

1. Off lease: F. R. Kenney, L. W. Wickes, Los Feliz Investment Co., and Bank of America of California.

C. Commodore Petroleum Company

1. Babonet lease: Charles Babonet.
2. Landl lease: Frank Landl.

D. Wilshire Oil Co., Inc.

1. Baker lease: John S. Baker and Julia M. Baker, Elma Y. Macklin, J. W. Bishop, Effie M. Aughtry, Edward M. Connor.

2. Cecelia lease: A. Wardman and Bonnie Wardman, Orrin Gallup.

3. Fraser lease: Allen B. Fraser and Cora S. Fraser.

4. Meyer lease: Victoria Meyer Meyer.

5. Peterson lease: A. Wardman and Bonnie Wardman, Orrin Gallup, et al.

[fol. 177] 6. Crawford lease: William W. Crawford, Ruby Fife, Gertrude Shoemaker, John Wesley Crawford, et al.

7. Buckbee lease: Joseph A. Buckbee, Louisa Mary Buckbee, et al.

E. Wilshire Annex Oil Co.

1. Eagle lease: Ida D. Eagle, F. A. Andrews, E. G. Hurst, et al.

2. Koontz lease: William H. Koontz, Emma A. Koontz, et al.

The respective lessors above enumerated each have an interest in the subject matter of this suit and their interests will be materially affected by any injunctive relief prayed for which may be granted, and they and each of them are necessary and indispensable parties to this suit. If they are not immediately made parties to this suit and served with process before any injunctive order is made, each of these answering defendants will be subjected to undue inconvenience and to danger of loss and to future litigation in that if any of these answering defendants are enjoined in this suit from fully performing the terms of each of said leases and the owners and holders of the interests of the lessors under each of said leases are not made parties to this suit there is great danger that steps will be taken by them respectively to forfeit each of said leases, and each of [fol. 178] these answering defendants is informed and believes and upon that ground alleges that if the terms of each of said leases required to be performed by each lessee are not strictly performed, said leases will be promptly forfeited and lost. Unless the lessor or lessors under each

of said leases and their successors in interest are then made parties to this suit and are then subject to the jurisdiction of this court, the granting of any injunction will lead to a multiplicity of suits against these answering defendants by reason of the matters hereinabove alleged, and each of these answering defendants will be irreparably injured and damaged.

35. The statute under which this suit is brought or the enforcement of such statute or the granting of the relief prayed for, in whole or in part, or the granting of any injunction or order restraining or prohibiting any of these answering defendants from performing any of the terms of any of said leases or depriving them, or the lessor or lessors or their successors in interest, of any of the benefits, privileges or rights under said leases, respectively, will impair the obligation of the contract of each of said leases, in violation of section 10 of Article I of the United States Constitution and of section 16 of Article I of the California Constitution and also the provisions of the Fourteenth Amendment of the United States Constitution and sections [fol. 179] 1, 13 and 14 of article I of the California Constitution, the protection of each of which each of these answering defendants hereby invokes.

36. Further answering this complaint, the reasonable value of the leasehold estates in the Santa Fe Springs oil field belonging to the Ambassador Petroleum Co. and of the buildings, rigging, equipment and other property thereon and/or appertaining, is in excess of $3,000,000.00. The reasonable value of the leasehold estate in the Santa Fe Springs oil field belonging to the Bandini Petroleum Company and of the buildings, rigging, equipment and other property thereon and/or appertaining, is in excess of $6,000,000.00. The reasonable value of the leasehold estates in the Santa Fe Springs oil field belonging to the Commodore Petroleum Company and of the buildings, rigging, equipment and other property thereon and/or appertaining, is in excess of $3,000,000.00. The reasonable value of the leasehold estates in the Santa Fe Springs oil field belonging to the Wilshire Oil Co., Inc., and of the buildings, rigging, equipment and other property thereon and/or appertaining, is in excess of $5,000,000.00. The reasonable value of the leaseholds and fee simple estate in the Santa

Fe Springs oil field belonging to the Wilshire Annex Oil Co. and of the buildings, rigging, equipment and other property thereon and/or appertaining, is in excess of $4,000,- [fol. 180] 000.00. If the relief prayed for is granted against all or any of these answering defendants each of these answering defendants will be unable to use its said lands or leaseholds or to produce oil or exercise its respective rights to mine and/or extract oil or gas therefrom with profit, and it will be commercially impracticable for each of these answering defendants to mine or extract oil and/or gas from its respective properties hereinabove set forth and described and they will be thereby deprived of the use of each of their respective properties and the use and value thereof will be largely, if not wholly, destroyed and they and each of them will be irreparably damaged to the extent of millions of dollars. To the extent that any of these answering defendants are denied or enjoined from producing oil and/or gas from any of their respective properties, and to the extent that they respectively are compelled to reduce the present gas-oil ratio as to any well now or hereafter being operated by them or any of them, and to the extent that they respectively are prohibited from wasting or releasing any of the resulting dry gas hereinabove referred to, their property will be taken and destroyed and their liberty invaded, in violation of the Fourteenth Amendment of the Constitution of the United States, and of sections 1, 13 and 14 of article I of the California Constitution, the [fol. 181] protection of each of which each of these answering defendants hereby invokes.

37. Further answering the complaint, alleges that for the past several years the defendant Wilshire Oil Co., Inc., has been the owner and operator of, and is now the owner and operator of, a casing head gasoline plant, for the extraction of gasoline from natural gas produced from Santa Fe Springs oil field, which is of the reasonable value of in excess of $750,000.00, and for more than six or seven years last past it has been the owner and operator, and is now the owner and operator, of a refinery and manufacturing plant for the refining and manufacture of gasoline and other petroleum by-products which is of the reasonable value of $1,500,000.00. It has heretofore made and executed contracts with the other answering defendants and with

other owners and/or producers of oil and gas wells for all of the natural gas produced by each of the other answering defendants from said Santa Fe Springs oil field and has similar contracts for other natural gas produced from said field by other owners and/or operators which, together with the natural gas produced by said Wilshire Oil Co., Inc., has been sufficient to permit said Wilshire Oil Co., Inc., to operate said casinghead gasoline plant to capacity at a profit by reason of the value of the casing head gasoline produced from such natural gas. Said casing head gasoline [fol. 182] plant is wholly dependent upon said contracts, and said supply of natural gas, for the operation of said casing head gasoline plant and to protect its investment therein and to secure the return upon such investment. If said natural gas so being furnished and supplied to said casing head gasoline plant is curtailed, the provisions of each of said contracts will be impaired and the property rights and interests of each of these answering defendants will be taken and confiscated to a constantly increasing extent, and if each such supply is prohibited the use and value thereof will be entirely destroyed and confiscated, all in violation of the provisions of the Fourteenth Amendment of the United States Constitution and section 10 of article I thereof, and of sections 1, 13 and 14 of article I and section 16 of article I of the California Constitution, the protection of each of which each of these answering defendants hereby invokes. The said Wilshire Oil Co., Inc., has heretofore made and executed contracts which are still in full force and effect with each of the other answering defendants excepting the Commodore Petroleum Company for all of the oil produced by them from their wells in Santa Fe Springs oil field and is dependent upon the oil so supplied and furnished to it under said contracts and upon the oil produced by itself from its wells within said Santa Fe Springs oil field for the operation of its said oil refinery [fol. 183] above mentioned, and is dependent upon the gasoline produced at said oil refinery and from its said casing head gasoline plant to supply its retail and wholesale customers in Southern California.

If the oil so being furnished and supplied to said oil refinery is curtailed, the provisions of each of said contracts will be impaired and the property rights and interests of

each of these answering defendants other than Commodore Petroleum Company will be taken and confiscated and to a constantly increasing extent, and if the relief prayed for is granted, said supply will be thereby prohibited and the use and value of said refinery will be entirely destroyed and confiscated and each of said defendants will be unable to continue in business at a profit or at all, all of which is and will be in violation of the provisions of the Fourteenth Amendment of the United States Constitution and section 10 of article I thereof and of sections 1, 13 and 14 of article I and section 16 of article I of the California Constitution, the protection of each of which each of these answering defendants hereby invokes.

Wherefore each of these answering defendants prays:

1. That the plaintiffs take nothing by this action;

[fol. 184] 2. That the lessor or lessors and their respective successors in interest under each of the leases hereinabove set forth be declared to be necessary and indispensable parties to this suit and that the plaintiffs be required forthwith to make them parties to this suit and to have summons served upon each of hem, respectively, and that no further proceedings be taken in this action affecting operations by any of these answering defendants thereon until this has been done and this court has acquired jurisdiction of them, respectively;

3. That each of these answering defendants have judgment against plaintiffs for their respective costs of suit incurred herein; and

4. For such further relief as to the court shall seem just and equitable.

Hunsaker, Britt & Cosgrove, Robert B. Murphey, Wm. L. Murphey, Attorneys for Defendants Ambassador Petroleum Co., Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Co., Inc., and Wilshire Annex Oil Co.

STATE OF CALIFORNIA,
County of Los Angeles, ss:

Victor L. Machris, being first duly sworn, deposes and says: That I am Secretary of each of the within named

answering defendants named in the foregoing Answer; [fol. 185] that I have read said Answer and know the contents thereof, and that the same is true of my own knowledge, except as to those matters which are therein stated upon information or belief, and as to those matters, I believe it to be true.

Victor A. Machris.

Subscribed and sworn to before me this 12 day of October, 1929. Wm. L. Murphey, Notary Public in and for said County of Los Angeles.

[fol. 186] EXHIBIT 9 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

Affidavit of Victor A. Machris on Behalf of Defendants Wilshire Oil Company, Inc.; Bandini Petroleum Company, Commodore Petroleum Company, Ambassador Petroleum Company, and Wilshire Annex Oil Company

STATE OF CALIFORNIA,
County of Los Angeles, ss:

Victor A. Machris, being first duly sworn, deposes and says: That he has been a resident of the City of Los Angeles, County of Los Angeles, State of California, for the past thirty (30) years; that for the past twelve (12) years he has been and now is actually engaged in the drilling of wells for oil and gas, and in the production, transportation, storage, refining and marketing of oil and gas and all kindred substances in Santa Fe Springs, Southern California,

and California; that he has been at all times and now is the Secretary of the Wilshire Oil Company, Inc., which company is engaged in the drilling of wells for oil and gas and [fol. 187] the production, transportation, storage, refining and marketing of oil and gas produced from Santa Fe Springs, in California, and elsewhere; that he has been, since the organization of, and now is, the Secretary of the Bandini Petroleum Company, Ambassador Petroleum Company and Wilshire Annex Oil Company, and that he now is the Secretary of the Commodore Petroleum Company, all of which companies are at this time actively engaged in the drilling of wells for oil and gas and the production thereof in the Santa Fe Springs Oil Field; that at all times herein stated he has had an active part in the management of the drilling of oil and gas wells and the production, transportation, storage, manufacture and sale of oil and gas produced by all the companies hereinabove named, from Santa Fe Springs and elsewhere, and that he is now and has been at all times the chief executive in charge of the refineries and gasoline absorption plants of the Wilshire Oil Company, Inc.

That he has read the affidavit of Arthur I. Davis, on behalf of the defendants, Wilshire Oil Company, Inc., Bandini Petroleum Company, Commodore Petroleum Company, Ambassador Petroleum Company and Wilshire Annex Oil Company, on file herein, and that he knows the contents thereof, and that he knows of his own knowledge that each and every statement of the said Arthur I. Davis [fol. 188] in the said Affidavit, is true and that he makes the said affidavit of Arthur I. Davis a part of his affidavit, as if each and every statement contained therein (excepting therefrom the personal history of said Arthur I. Davis) were herein set out in full.

That he has read the Answer of the Defendants, Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, Inc. and Wilshire Annex Oil Company, on file herein, and that he knows the contents thereof, and that of his own knowledge the same are true, except as to those matters, which in said answer are stated upon information and belief, and that he makes said answer a part of this affidavit as if said answer was herein set out in full; that he hereby incorporates and makes said answer a part of this affidavit

as if each and every denial and allegation therein were herein fully set forth.

That since the year 1921, the defendants, Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, Inc. and Wilshire Annex Oil Company, have drilled approximately seventy (70) wells for oil in the Santa Fe Springs Oil Field and District; that each of said wells, when completed in any zone or zones in the said oil field, produced large quantities of gas and oil; that said gas is a necessary [fol. 189] incident to the flowing of said wells, but that the production of gas from said wells or any of them, has at all times been incidental and subservient to the main purpose of the drilling of said wells, to-wit: The production of oil therefrom.

That the interstices (voids or crevices) in the sands composing each of the zones in the Santa Fe Springs Oil Field, vary in different localities in the Santa Fe Springs Oil Field; that the amount of gas produced from various wells located in said Santa Fe Springs Oil Field, necessary to the proper economical and efficient production of oil, varies with the interstices of the sand from which the well is produced; that the defendants, Bandini Petroleum Company, Ambassador Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, Inc. and the Wilshire Annex Oil Company, and each of them, in each of their said wells, are producing the said wells efficiently and economically and that the amount of gas produced from the said wells and each of them, is no more than that actually required for the economical and efficient production of oil therefrom, and that none of these defendants are unreasonably wasting the gas produced from said wells.

That the amount of oil ultimately recoverable from said field cannot, by the limitation of the amount of gas pro- [fol. 190] duced to the barrel of oil produced in any well or wells, be substantially increased, but that the amount of oil recoverable from any well or wells drilled in said field, is directly proportionate to the amount of gas produced or permitted to be produced.

That the gas produced in each and every oil well of the said defendant companies, is put to the utmost beneficial use by reason of its use in the flowing of oil wells naturally; that the natural gas when produced is used in the produc-

tion and manufacture of casinghead gasoline therefrom; that the resulting dry gas, after the extraction of casinghead gasoline from natural gas produced from said wells, is used to a considerable extent as fuel for boilers in the operations of the said defendant companies, and in the boilers of the casinghead gasoline manufacturing plant or plants; that the beneficial use to which the said gas is subjected is in excess of Forty (40%) per cent of the original volume of virgin natural gas produced; that large quantities of said resulting dry gas has been and now is being used in the flowing of oil wells by artificial means; that the value of each barrel of 33 degrees gravity Santa Fe Springs crude oil, which is the average gravity of all oil produced therefrom, is $1.35 per barrel; that the value of each one thousand cubic feet of marketable natural gas at all times has [fol. 191] been and now is less than approximately ten (10¢) cents per thousand cubic feet, so that the relative value of two thousand five hundred (2,500) cubic feet of gas to the value of one barrel of oil is less than twenty (20%) per cent.

That at numerous times since the commencement of the incidental production of gas from wells heretofore drilled by the said defendants, Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, Inc. and Wilshire Annex Oil Company, the said defendant companies and each of them has repeatedly offered the said surplus resulting dry gas to the only known purchasers of said dry gas in the Santa Fe Springs Oil Field and district, to-wit: The Southern California Gas Company, Los Angeles Gas & Electric Company and Industrial Supply Company, but that said purchasers of gas have repeatedly refused to purchase the said gas for any price whatsoever; that there is no market whatsoever for the said surplus dry gas; that recently each and all of the said defendant companies has and/or have offered to contract to give free of cost the total amount of surplus dry gas to the Southern California Gas Company, the Los Angeles Gas and Electric Company, Industrial Supply Company and the Southern California Edison Company, a large consumer of gas, if any of said companies would [fol. 192] contract for any period of time not to exceed two (2) years, to receive the same so that said surplus gas could be utilized by said companies or their consumers,

but that each and all of said companies refused to accept the same.

Affiant is informed and believes and therefore states on information and belief, that the Standard Oil Company of California, General Petroleum Corporation, Texas Company, Richfield Oil Company of California, Union Oil Company of California, Associated Oil Company and the Shell Company of California, or some or all of them, through their officers, agents or employees, or otherwise, have purchased large blocks of stock in public utility gas companies operating in Southern California and California, and/or with the express purpose thereby of obtaining representation on the Boards of Directors of said companies, and with the purpose of obtaining contracts with the said public utility companies for the sale of all or most of their natural gas requirements.

That the said oil companies have in the past at all times monopolized, and now are monopolizing, all of the existing channels for the sale of natural gas produced from the Santa Fe Springs Oil Field; that affiant is informed and believes and states upon information and belief that the said defendant companies have formed, or are now forming, an association, which association will further monopo- [fol. 193] lize the existing markets for natural gas produced from the Santa Fe Springs Oil Field, and will not and do not intend to permit the defendants, Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, Inc., and Wilshire Annex Oil Company to sell their said natural gas to any existing outlet or purchaser of the same.

That it is impossible for the defendants, Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, Inc. and Wilshire Annex Oil Company, to produce oil in Santa Fe Springs Oil Field and District, without the production of a surplus of natural gas over and above that which can be placed to a beneficial use; that if said defendants are compelled to repressure their surplus gas in any zone or zones in the Santa Fe Springs Oil Field, said defendants will be unable to operate their business at a profit due to the fact that such repressuring, even though impractical, is prohibitive in cost, and without profit, present or future.

That the Standard Oil Company of California, General Petroleum Corporation, Texas Company, Richfield Oil Company of California, Union Oil Company of California, Associated Oil Company and the Shell Company of California, or one or all of them, are now engaged in the operation [fol. 194] of and intend of necessity, if the injunction prayed for in plaintiffs' complaint be granted, to engage in the operation of transporting surplus natural gas produced from the Santa Fe Springs Oil Field, in excess of the quantities used in their operations and in excess of the amount of said natural gas that they are able to sell to the public utility companies to meet their maximum requirements, to oil field or fields other than the Santa Fe Springs Oil Field, in which these defendants have no holdings, to repressure existing oil bearing sands in said fields, and further that the defendants, Wilshire Oil Company, Inc., Bandini Petroleum Company, Commodore Petroleum Company, Ambassador Petroleum Company and Wilshire Annex Oil Company, and each of them will be thereby prevented from any possible benefit which might result were said gas repressured in any existing oil sand in the Santa Fe Springs Oil Field, by way of the production of oil therefrom; that the said Standard Oil Company of California, General Petroleum Corporation, Texas Company, Richfield Oil Company of California, Union Oil Company of California, Associated Oil Company and the Shell Company of California, by reason of their existing contracts and monopolization of the existing markets for natural gas produced from the Santa Fe Springs Oil Field, will continue to [fol. 195] produce oil from their said wells, and unless the defendants, Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, Inc., and Wilshire Annex Oil Company are able to and do dispose of their said surplus gas by artificial means in the repressuring of oil bearing zones in the Santa Fe Springs Oil Field, which is prohibitive in cost, will be prevented from producing oil, and that oil to which it would be otherwise able to produce and to which they are entitled will be produced by the said defendants, Standard Oil Company of California, General Petroleum Corporation, Texas Company, Richfield Oil Company of California, Union Oil Company of California, Associated Oil Company and the Shell Company of California, through

their offset wells, and the defendants, Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, Inc., and Wilshire Annex Oil Company, will be deprived of their said oil which they would otherwise produce and be entitled to.

That if the defendants, Ambassador Petroleum Company, Bandini Petroleum Company and/or Commodore Petroleum Company and/or Wilshire Annex Oil Company and/or Wilshire Oil Company, Inc. are compelled to dispose of their surplus natural gas by artificial means by repressur- [fol. 196] ing existing zones in the Santa Fe Springs Oil Field, they by so doing will force and propel oil existing under their respective properties located on the edges of the Santa Fe Springs Oil Field, to other producers of oil in said field and having off-set wells, and be thereby deprived of oil to which they would otherwise be entitled and could produce through existing or new wells.

That the limitation of the production of gas would thereby entail a limitation of the amount of crude oil produced in the Santa Fe Springs Oil Field, thereby causing a shortage of petroleum produced in Southern California, and a subsequent increase in the price of said oil, and the necessarily subsequent increase in the price of commercial gasoline; that the People of the State of California will be compelled thereby to pay enormous sums of money for commercial gasoline in excess of what they are now paying; that the detriment to which the People of the State of California will suffer thereby is greatly in excess of any saving which might be occurred by reason of the conservation of the gas.

That the defendants, Wilshire Annex Oil Company and Wilshire Oil Company, Inc. have no well or wells at the Santa Fe Springs Oil Field, wherein can be injected or pumped any surplus natural gas produced from their said [fol. 197] properties; that the defendants, Ambassador Petroleum Company and Bandini Petroleum Company have no well or wells at the Santa Fe Springs Oil Field, wherein can be injected or pumped any surplus natural gas produced from their said properties, without the cessation of production of oil therefrom; that the said defendants are owners of leasehold estates and of real property located in Santa Fe Springs Oil Field; that oil has heretofore been

produced on said parcels of real property under their respective leases and that the said defendants have, respectively, vested interests in and to the oil located in and under said real property covered by said leases; that in and by the terms of said leases under which the defendants are holding their respective real properties and are producing oil and gas therefrom, there is contained a provision to the effect that said respective defendants, as lessees, shall pump and/or operate each and every oil well drilled upon said real properties, diligently and in good faith and in some instances to their maximum capacity; that if an injunction or temporary restraining order be granted in the above entitled cause, and said respective defendants are compelled to cease or diminish the production of oil and gas from said wells, that they and each of them may be under default under the terms and conditions of said leases, and lessors may serve notice of forfeiture on the [fol. 198] respective defendants, and for a continuation of the said failure to produce oil from said real property, the said defendants and each of them, as lessees under the respective leases, may forfeit their entire leasehold estates; that the leasehold estate of the Bandini Petroleum Company, in the Santa Fe Springs Oil Field is of a value in excess of Six Million ($6,000,000.00) Dollars; that the leasehold estate of the Ambassador Petroleum Company in the Santa Fe Springs Oil Field is of a value in excess of Three Million ($3,000,000.00) Dollars; that the leasehold estates of the Wilshire Oil Company, Inc., in the Santa Fe Springs Oil Field are of a value in excess of Five Million ($5,000,000.00) Dollars; that the leasehold estates of the Wilshire Annex Oil Company, are of a value in excess of Four Million ($4,000,000.00) Dollars; that the leasehold estates of the Commodore Petroleum Company, are of a value in excess of Three Million ($3,000,000.00) Dollars; that none of said land-owners have been named as parties defendant in the above entitled cause.

That a flowing oil well in the Santa Fe Springs oil field cannot be "pinched in" or closed in, in order to conserve gas produced therefrom, without endangering and jeopardizing the total production of oil capable of being produced therefrom, and such pinching in or closing in will materially [fol. 199] decrease the ultimate production of oil which

would otherwise be produced, with the resulting loss of hundreds of thousands of dollars in each instance; that the major part of the production of an oil well must occur in the early life of said well; that numerous oil wells owned by the Standard Oil Company of California, General Petroleum Corporation, Texas Company, Richfield Oil Company of California, Union Oil Company of California, Associated Oil Company and Shell Company of California, and adjacent to the property of these defendants, are producing from or are about to produce from the same oil zones as those from which these defendants are now producing, and that the production from said zones will rapidly decrease the amount of oil therein; that the Standard Oil Company of California, General Petroleum Corporation, Texas Company, Richfield Oil Company of California, Union Oil Company of California, Associated Oil Company and Shell Company of California, by reason of their ability to dispose of any surplus gas that they might have, on account of their existing contracts for the sale of said surplus gas, or by reason of their being able to make enormous investments in equipment and therefore being able to dispose of their surplus gas by injection into depleted zones elsewhere, will produce and convert to their own use oil now producible by these defendants, should these defendants be compelled to cease producing oil as [fol. 200] will be the case should the injunction prayed for in this action be granted, all to the great and irreparable injury and loss to these defendants, Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Annex Oil Company and Wilshire Oil Company, Inc., and each of them; that by the "pinching in" or closing down of the said oil wells, or any of them, the respective lessors of the lessee, and these defendants, and each of them, will suffer great and irreparable injury and damage to the extent of many millions of dollars.

Victor A. Machris.

Subscribed and sworn to before me this 18th day of October, 1929. Wm. L. Murphey, Notary Public in and for the County of Los Angeles, State of California. (Notary Seal.)

[fol. 201] EXHIBIT 10 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

Affidavit of George L. Machris on Behalf of Defendants Wilshire Oil Company, Inc.; Bandini Petroleum Company, Commodore Petroleum Company, Ambassador Petroleum Company, and Wilshire Annex Oil Company

STATE OF CALIFORNIA,
County of Los Angeles, ss:

George L. Machris, being first duly sworn, deposes and says: That he has been a resident of the County of Los Angeles, State of California for the past thirty (30) years; that for more than twelve (12) years last past he has been and now is actively engaged in all branches of the petroleum industry; that he has managed and directed during said time, and is now managing and directing the drilling of all wells for oil and gas drilled by the Wilshire Oil Company, Inc., Bandini Petroleum Company, Commodore Petroleum Company, Ambassador Petroleum Company and Wilshire Annex Oil Company; that he has during said time [fol. 202] managed, and directed, and now is managing and directing the production, transportation, storage, refining and marketing of the oil and gas and all kindred substances produced by said companies; that the Wilshire Oil Company, Inc., has been, at all times herein mentioned, actively engaged in the drilling of wells for oil and gas, and the production, transportation, refining and marketing of oil and gas produced from the Santa Fe Springs Oil Field, and from and in other oil fields; that the Bandini Petroleum Company, Ambassador Petroleum Company, Commo-

dore Petroleum Company and Wilshire Annex Oil Company have been since their organization actively engaged in the drilling of wells for oil and gas and the production thereof, in the Santa Fe Springs oil field.

That he has been at all times, and now is the President of the Wilshire Oil Company, Inc., Bandini Petroleum Company, Ambassador Petroleum Company and Wilshire Annex Oil Company, and that he now is the President of the Commodore Petroleum Company, and that by virtue of such position in said companies, he is well acquainted with the economical and financial phases of the petroleum industry and with all problems incident thereto as well as with the problems incident to the operations hereinbefore set out.

[fol. 203] That he has become thoroughly acquainted with the geological and subsurface conditions in the Santa Fe Springs oil field and with the practical problems incident to the drilling of wells for oil and gas in said field and the production of oil and gas therefrom.

That he has read the affidavit of Arthur I. Davis on behalf of the defendants, Wilshire Oil Company, Inc., Bandini Petroleum Company, Commodore Petroleum Company, Ambassador Petroleum Company and Wilshire Annex Oil Company, on file herein, and that he knows the contents thereof, and that he knows of his own knowledge and from his own experience that the statements of the said Arthur I. Davis in said affidavit are true, and that they are founded upon facts established by the experience of drillers of oil and gas wells and/or operators in the Santa Fe Springs oil field and in other oil fields in Southern California; that he makes the affidavit of Arthur I. Davis his own affidavit as if each and every statement contained therein (excepting the personal history of the said Arthur I. Davis) were in this affidavit set out in full.

That he has read the Answer of the defendants, Wilshire Oil Company, Inc., Wilshire Annex Oil Company, Ambassador Petroleum Company, Bandini Petroleum Company and Commodore Petroleum Company, on file herein, and [fol. 204] that he knows the contents thereof, and that of his own knowledge the same are true, except as to those matters which in said Answer are stated upon information and belief, and as to those matters, he believes them to be

true, and that he makes said answer a part of this, his affidavit, as if said answer was in this affidavit set out in full.

That he has read the affidavit of Victor A. Machris on behalf of the defendants, Wilshire Oil Company, Inc., Wilshire Annex Oil Company, Bandini Petroleum Company, Ambassador Petroleum Company and Commodore Petroleum Company, on file herein, and that he knows the contents thereof, and that he knows of his own knowledge that each and every statement of the said Victor A. Machris in said affidavit is true, and that he makes the said affidavit of Victor A. Machris his own affidavit as if each and every statement contained therein (excepting therefrom the personal history of the said Victor A. Machris) were in this affidavit set out in full.

George L. Machris.

Subscribed and sworn to before me this 18th day of October, 1929. Wm. L. Murphey, Notary Public in and for the County of Los Angeles, State of California. (Notarial Seal.)

[fol. 205] EXHIBIT 11 TO PETITION

In the Superior Court of the State of California in and for the County of Los Angeles

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

Affidavit of Arthur I. Davis on Behalf of Defendants Wilshire Oil Company, Inc.; Bandini Petroleum Company, Commodore Petroleum Company, Ambassador Petroleum Company and Wilshire Annex Oil Company

STATE OF CALIFORNIA,
County of Los Angeles, ss:

Arthur I. Davis, being first duly sworn, deposes and says: That he is, by profession, a Mining and Petroleum Engi-

neer; that he was graduated in Mining Engineering, Faculty of Applied Science and Engineering of the University of Toronto, and received the degree of Bachelor of Applied Science in 1910; that during the period from 1910 to 1913, he was employed by various mining companies operating in Northern Ontario Canada, as a Mining Engineer and Geologist; that from 1913 to 1914, he was employed as a Mining Engineer by the International Nickel Company, Sudbury Canada; that during 1915 and 1916, he was em-
[fol. 206] ployed as an Engineer and Geologist by the United States Gypsum Company; that during 1917 he was employed as a Mining Engineer by the Burma Mines Corporation, Northern Shan States, Burma; that from 1918 to 1921, he was in active service in the Royal Engineers in India, Persia, Wazeristan and Mesopotamia; that during 1922 he was employed by the Associated Oil Company in the State of California, in its Geological Department; that during 1923 and 1924 he was assistant to J. P. del 'Eau as a Mining and Petroleum Engineer and Geologist; that from 1925 to the present time he has been and now is operating as a Consulting Geologist and Petroleum Engineer for the Wilshire Oil Company, Inc., Wilshire Annex Oil Company, Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Reliance Oil Company, Jameson Oil Company, Globe Petroleum Corporation, Southwest Petroleum Company, Twin Bell Oil Company and Nordon Corporation, Limited, Canada; that during such time and while in the employ of the above named companies, affiant has become thoroughly acquainted with the geological and subsurface conditions in the Santa Fe Springs Oil Field and has become well acquainted with the drilling and production of oil and gas from all the zones in the Santa Fe Springs Oil Field, and other oil fields in Southern California, and other oil fields in the State of California.

[fol. 207] That he is thoroughly familiar with the geological formations and the drilling for and production of oil from the various oil and gas producing zones in the Santa Fe Springs Oil Field; that the geological structure at said field is that of a convex dome; that the major axis on said field runs approximately east and west and is more or less correctly set forth on the map attached as Exhibit "A"

of plaintiffs' complaint; that the other axis shown on Exhibit "A" and which runs approximately north and south, is not, in his opinion, correctly disclosed on Exhibit "A" of plaintiffs' complaint, but that said axis should correctly be placed approximately one thousand two hundred (1,200) feet easterly from said cross section line as disclosed on said map attached to plaintiffs' complaint as Exhibit "A," so that the intersection of said lines should be at a point at or near the northeast corner of the town lot section, and at or near the intersection of Butler Road and Anaheim Telegraph Road.

That each of the zones mentioned in plaintiffs' complaint varies as to thickness, composition and lateral extent in the Santa Fe Springs Oil Field; that each of said zones is composed of sand, sandy shale and shale members; that the proportionate amount of sand, sandy shale and shale bodies comprising each and all of said zones varies materially from point to point and within short distances, laterally [fol. 208] as well as vertically; that the sands comprising a portion of said zone vary materially in porosity, hardness and texture between well locations and within short distances throughout the extent of said zone or zones in said field, and in many instances wells drilled within not more than three hundred (300) feet of each other have varied to the extent that one well encountered almost all shale and sandy shale in said zone, while the other of said wells encountered practically all sand with very little shale or sandy shale; that the production of oil and gas in wells in the Santa Fe Springs Oil Field depend to a great extent on the zone in which they are completed, the proportion of sand, sandy shale and shale members encountered in the zone and the porosity, hardness and texture of the sands encountered in the particular zone.

That the oil and gas existing in the zones in the Santa Fe Springs Oil Field were and are highly volatile, which accounts for the light gravity oil produced therefrom; that the oil and gas contained in the zones in the Santa Fe Springs Oil Field exist under high pressure; that a large percentage of the gas in said zone or zones, due to said high pressure, exists in the form of a liquid in solution with the oil, forming one homogeneous liquid body or substance; that when a well is drilled into an oil formation the effect is [fol. 209] to release the pressure at and near the well,

causing the oil and gas contained in the oil to flow towards and through the well; that whenever natural gas is present in solution or associated with underground deposits of oil, it is impossible to produce such oil without also producing gas in solution or association therewith, there being no known means for separating the oil from the gas and leaving the gas in the underground formations when bringing the oil to the surface; that when a well is placed on production there is caused to be created underground drainage channels surrounding the well, but the drainage area of each well is confined to a short distance from the well, varying as to the drainage of oil and the drainage of gas; that due to the variations in the zones, and within the same zone in the Santa Fe Springs Oil Field, as to the proportion of sand, sandy shale and shale members existing in the zone and the porosity, hardness and texture of the sands encountered in the particular zone as hereinbefore stated, the production of oil and/or gas from any well does not, in his opinion, affect the whole of the oil field, but is confined to a very limited area adjacent to the well; that the greatest production of oil from an oil field is accomplished by intensive drilling due to the fact that a few wells will produce more gas to the barrel of oil than if a larger number of wells are drilled, which fact is due to the relative [fol. 210] drainage area of gas being larger than that of oil; that the first wells drilled in an oil field usually obtain a larger production of oil and gas due to the underground channels hereinabove mentioned; that the production of oil in a well is the primary and most valuable use to which gas may be put; that the commercial value of oil and its many utilities, greatly exceeds the commercial value and utilities of gas; that without gas it is not commercially possible to produce oil from depths to which wells have been drilled in the Santa Fe Springs Oil Field.

That the production of oil and gas and the gas-oil ratio of any producing well drilled into any of the zones in the Santa Fe Springs Oil Field, differs materially from the production of oil and gas and the gas-oil ratio of any other producing well drilled into the same zone or other zones, even though these wells may off-set each other; that there is no known method for artificially controlling the ratio of the quantity of gas to the quantity of oil concurrently produced from any well in the Santa Fe Springs Oil Field;

that there is no known method by which it is possible to lower the gas-oil ratio on a flowing well without jeopardizing the well; that there is no known method for obtaining a maximum production of oil with a minimum production of gas from any oil zone; that the known methods for artificially altering the quantity of gas and oil concurrently [fol. 211] produced from any flowing well, depend upon the adjustment of the "flow bean" at the well, causing the flow of the well to be "pinched in" or opened up; that allowing for a normal decline in production, the "pinching in" or reduction in the production of oil and gas from a well is hazardous to said well in that the same can never be returned to the same original production or degree of efficiency.

That there are certain elements which may be considered in determining whether a given well is producing on an efficient gas-oil ratio without changing the mechanical condition of or operating condition of the well; that one consideration is the location of the well, due to the fact that wells located on the top of a structure such as Santa Fe Springs Oil Field, are inclined to produce larger quantities of gas to the barrel of oil, but this statement cannot be definitely and generally applied to all wells due to variations in general underground conditions; that other factors are the mechanical condition of the well, such as depth and size of casing, the particular formation or zone from which the well may be producing, type and size of perforations in the oil string, previous production, the age of the well, and comparing the production of a particular well with other off-set wells producing from the same sand or formation; that the question of gas-oil ratios has only arisen in the [fol. 212] petroleum industry within the past two or three years and that this point of development is more or less theoretical; that the experimentation on a producing well, such as lowering of tubing, etc., are not practical, as there is no assurance that the same well will produce on a more efficient gas-oil radio and also that said wells by such disturbances may cease to produce oil and/or gas entirely; that it is impossible to set an arbitrary gas-oil ratio that would be equitably applicable to all the wells producing in the Santa Fe Springs Oil Field, or that would be equitably applicable to all the wells producing in a certain circumscribed area in the Santa Fe Springs Oil Field, or that

would be equitably applicable to all the wells from any certain zone in the Santa Fe Springs Oil Field, or that would be equitably applicable to all the wells producing from a certain area of any zone in the Santa Fe Springs Oil Field, but that each and every well must be considered as an individual problem in determining an efficient and equitable gas-oil ratio for said well; that if an arbitrary ratio, such as three thousand (3,000) cubic feet to a barrel of oil is established, said ratio will, in many instances, cause the complete cessation of production of oil and gas from certain wells, because it will be impossible to reduce the ratio to that required; that it is generally known among Petroleum Engineers from experience, and affiant states that if a well [fol. 213] is "killed", even for a short period of time, that said well rarely, if ever, can be again returned to the same rate of production or efficiency, but in most instances the future production of oil and gas from said well will be materially and substantially jeopardized and in many instances entirely lost.

That when a well is drilled in a workman-like manner, using the modern and improved appliances in accordance with the best oil field practice in the Santa Fe Springs Oil Field, the production of oil to gas in many and most instances are directly proportionate to the amount of oil produced; that if a back-pressure is built up in a well by the "pinching in" or changing of "flow beans" in any well producing from a high pressure formation such as exists in the Santa Fe Springs Oil Field, in the Buckbee, O'Connell, Hathaway and Clark Sands, such wells are subject to the hazard of "blowing out", so that beyond a certain restriction, the only practical and safe way is of necessity to "kill" said wells either by pumping of mud or other substance under high pressure into said well; that if the production of one well is substantially decreased or entirely "shut in", and surrounding wells are permitted to produce oil and gas from the same oil zone, the underground channels are changed so as to cause and permit the oil and gas which would otherwise have been produced from the [fol. 214] well "killed", to flow and be produced by such surrounding or off-set wells.

That the "pinching in" of oil and gas or lowering of the gas-oil ratios, if this were possible, of the present flowing wells in the Santa Fe Springs Oil Field, would not, in affiant's opinion, increase the total ultimate production of oil from said field, but would delay and tend to decrease rather than increase the total ultimate recovery of oil in said field.

That affiant has made a careful and thorough analysis of the mechanical conditions of each and every well of the defendants, Wilshire Oil Company, Inc., Bandini Petroleum Company, Commodore Petroleum Company, Ambassador Petroleum Company and Wilshire Annex Oil Company, and considering all available factors known to the petroleum industry in determining the efficiency of the production of oil and gas, states that in his opinion each and every one of said wells is producing oil and gas in an efficient, economical and mechanically correct manner; that each of said wells has been drilled in a workman-like manner and in accordance with the best known practice and usage in the oil industry in the State of California, and in accordance with the laws of the State of California; that each of said wells is producing no more gas than is reasonably necessary in the production of oil in the quantities that [fol. 215] are now being produced therefrom; that none of said defendants are producing any more gas than is reasonably necessary in the production of oil from each of their respective wells; that considering the amounts of oil being produced by said defendants from their respective wells, the amount of gas being produced from said respective wells, is no more than should safely, reasonably and economically be taken from said wells, and is not jeopardizing or interfering with the correlative rights of other operators in the same zone o zones or in said oil field; that the quantity of gas being produced from each of said defendants' wells, is not jeopardizing the efficiency of the production of any wells surrounding said well or wells; that said wells and each of them are, in most instances, producing oil and gas in a more efficient manner and with a lower gas-oil ratio than any off-set wells owned and operated by other producers of oil in the Santa Fe Springs Oil Field, and that the production of gas from each and every one of the wells of said defendants, is not inefficient or wasteful, and is not unreasonably affecting the rights of other

operators in the Santa Fe Springs Oil Field to produce oil and gas in an efficient manner.

That within the last two years there has been advanced in the petroleum industry, the idea that gas might be in- [fol. 216] jected into depleted oil zones and thereby conserved for future production and use; that to date, repressuring is in the experimental stage, the success of which is problematical, conjectural, hypothetical and not capable of proof; that one experiment has been carried on, but to date, allowing for the natural production of gas in said field and its normal decline, there has been recovered less than five (5%) per cent in volume of the gas injected therein.

That the cost of repressuring or injecting of gas into a depleted oil zone is now prohibitive to the extent that if each operator in the Santa Fe Springs Oil Field is required to repressure any zone therein, it will jeopardize his operations to the extent that he will not be able to extract oil and gas through his wells at a profit; that considering the cost of repressuring and compared to the possible benefits to any operator in any field, it may safely be stated that repressuring and storage of gas is impractical due to the fact that the value of any gas which might be recoverable is very small as compared with the cost of repressuring; that it is an utter impossibility, mechanically, to repressure or store gas in existing oil zones in the Santa Fe Springs Oil Field from which wells are now flowing; that at the present time there is not sufficient data or experience to assure an [fol. 217] operator or operators that gas injected into a partially depleted oil zone will increase the recovery of oil to any appreciable extent; that the quantity of gas now capable of being injected into oil zones or depleted oil zones, is relatively small to the total gas at present being produced; that if the operators are required to repressure any zone and thus utilize surplus gas, and if some of the gas is transported to other oil fields and repressured therein, then the operators in the field from which the gas was produced would be deprived of any benefits which might accrue were it injected artifically into the zone or zones in the field from which it was produced.

That the repressuring of gas produced at Santa Fe Springs Oil Field, is impractical, prohibitive in cost and will result in undue hardships upon certain operators, to the advantage of other operators, in direct contravention

of the correlative rights of each operator to produce oil and gas from his properties.

Arthur I. Davis.

Subscribed and sworn to before me this 18th day of October, 1929. Wm. L. Murphey, Notary Public in and for the County of Los Angeles, State of California. (Notarial Seal.)

[fol. 218] EXHIBIT 12 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

Affidavit of Merwin H. Soyster on Behalf of Defendants Wilshire Oil Company, Inc.; Bandini Petroleum Company, Commodore Petroleum Company, Ambassador Petroleum Company and Wilshire Annex Oil Company

STATE OF CALIFORNIA,
County of Los Angeles, ss:

Merwin H. Soyster, being first duly sworn, deposes and says: That he is, by profession, a Petroleum Engineer and Geologist; that for the three years from 1911 to 1914, he attended the California Institute of Technology at Pasadena, California, where he majored in petroleum technology, chemistry and engineering; that for the two years, from 1914 to 1916, he attended the University of California, at Berkeley, where he majored in petroleum engineering and geology; that from May 1916 to March 1918, he was employed by the General Petroleum Corporation and the Security Oil Company, in doing various kinds of prac-
[fol. 219] tical oil field work; that from June 1918 to May

1920, he was employed by the California State Mining Bureau, Department of Petroleum and Gas, at Bakersfield, California, as a Petroleum Engineer; that from May, 1920 to March, 1921, he was employed by the aforesaid Bureau and Department as a Deputy State Oil and Gas Supervisor at Santa Maria, California; that from March, 1921 to March 1, 1923, he was employed by the aforesaid Bureau and Department as a Deputy State Oil and Gas Supervisor at Los Angeles, California; that since March 1, 1923, he has been and now is operating as a Consulting Geologist and Petroleum Engineer for the hereinafter named companies, his work having special reference to the drilling, completion and production of oil wells in all fields in the State of California, and particularly those in Southern California; that said companies are:

Wilshire Oil Company, Inc.;
Wilshire Annex Oil Company;
Bandini Petroleum Company;
Commodore Petroleum Company;
Ambassador Petroleum Company;
Allied Petroleum Corp.;
Archer Oil Co.;
Barry Oil Co.;
Bay Hills Oil Co.;
Campbell Oil Co.;
[fol. 220] Casa Blanca Oil Co.;
Concord Oil Co.;
H. F. Alexander;
Davis & Macmillan Co.;
Fred B. Foster & Co.;
Harmony Oil Co.;
Henderson Petroleum Corp.;
Modoc Petroleum Co.;
Mohawk Oil Co.;
Olympic Refining Co.;
Rainbow Petroleum Co.;
Star Petroleum Co.;
Transport Oil Co.;
U. S. Oil & Royalties Co.;
Vesta Petroleum Co.;
Western Drilling & Producing Co.;
Western Oil & Refining Co.;

World Petroleum Corp.;
Twin Bell Oil Syndicate;
Second Twin Bell Syndicate;
Third Twin Bell Syndicate;

that during such time and while employed as above set out, he has become thoroughly acquainted with the geological and subsurface conditions in the Santa Fe Springs Oil Field and has become well acquainted with the drilling for and production of oil and gas from all the zones in the Santa Fe Springs Oil Field, and other oil fields in Southern [fol. 221] California, and in the State of California, and that he is thoroughly familiar with the geological formations in the drilling for and the production of oil from the various oil and gas producing zones in the said Santa Fe Springs Oil Field.

That he has read the affidavit of Arthur I. Davis, on behalf of the defendants, Wilshire Oil Company, Inc., Bandini Petroleum Company, Commodore Petroleum Company, Ambassador Petroleum Company and Wilshire Annex Oil Company, and that he knows the contents thereof, and that he knows of his own knowledge that each and every statement of the said Arthur I. Davis in the said affidavit, is true, and that he makes the said affidavit of Arthur I. Davis his own affidavit as if each and every statement contained therein (excepting therefrom the personal history of the said Arthur I. Davis) were in this affidavit set out in full.

Merwin H. Soyster.

Subscribed and sworn to before me this 18th day of October, 1929. Wm. L. Murphey, Notary Public in and for the County of Los Angeles, State of California. (Notarial Seal.)

[fol. 222] EXHIBIT 13 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

Affidavit of Roy G. Mead on Behalf of Defendants Wilshire Oil Company, Inc., Bandini Petroleum Company, Commodore Petroleum Company, Ambassador Petroleum Company, and Wilshire Annex Oil Company

STATE OF CALIFORNIA,
County of Los Angeles, ss:

Roy G. Mead, being first duly sworn, deposes and says:

That he is by profession, a Mining and Petroleum Engineer; that he attended the University of Arizona and graduated from the College of Mining Engineering of same in the year 1906, with the degree of B. S. in Mining Engineering; that after graduation he studied for one year Advanced Geology under Professor C. F. Tolman, who is now Professor of Geology at Leland Stanford, Jr., University; that he has been actively engaged in mining engineering work since the year 1906, and that since 1911 he has been engaged almost exclusively in geological and [fol. 223] engineering work as applied to the petroleum industry; that from 1911 to 1916 he was employed by the United States Government in the field service of the Department of the Interior, during which time he made geological investigations of oil lands in Southern California; that during the period from 1916 to 1918, he was employed as Superintendent and General Manager of the Troy Arizona Copper Company, at Troy, Arizona; that he resigned from that position to enter into military service as Captain of Engineers in the United States Army, serving until

February 1919; that from 1919 to 1921 he was engaged in private practice in Los Angeles, doing geological work in Southern California, Utah and Wyoming; that from 1921 to 1923 he was employed as Assistant Geologist by the Associated Oil Company, and during a portion of that period was Resident Geologist for said oil company in the Long Beach oil fields; that from 1923 to 1925, he was employed as Consulting Engineer and Geologist by numerous independent oil companies operating in the Long Beach and Santa Fe Springs oil fields; that during a portion of said time he studied and analyzed the Santa Fe Springs oil field and the oil and gas production therefrom, and from the Long Beach oil field, and other oil fields in Southern California; that since 1925 he has been engaged in private practice as [fol. 224] a Geologist and Petroleum Engineer with headquarters in Los Angeles, California, and now has offices at 1220 Chapman Building; that his work as Consulting Engineer and Geologist has been done in the states of California, Arizona, New Mexico and Utah; that he has made a study of the Los Angeles Basin oil fields, including therein, the Santa Fe Springs oil field, since the field first became known; that he is also familiar with every field in the Los Angeles Basin; that he is familiar with and has made a study of the subsurface conditions in the Santa Fe Springs oil field relative to the occurrence, accumulation and production of oil and gas from, and of the drilling, completion and operation of wells in the said Santa Fe Springs oil field, as well as other oil fields in the State of California; that he is familiar with properties of the defendants on whose behalf he makes this affidavit, and the wells thereon.

That the geological structure of the Santa Fe Springs oil field is that of a convex dome, curving downward from the highest point thereof at an angle of approximately five degrees from the horizontal, the major axis thereof extending approximately east and west as is shown on the map marked Exhibit "A" attached to plaintiffs' complaint herein; that the minor or transverse axis of said structure intersects said major axis approximately at the intersection of [fol. 225] Butler Road and Anaheim Telegraph Road, which point is approximately one thousand two hundred (1,200) feet easterly from the intersection of the said axes,

as shown on the map marked Exhibit "A" attached to plaintiffs' complaint.

That the oil producing horizon of the Santa Fe Springs structure is made up of a number of separate oil and gas producing zones, varying in thickness, each zone being separated from adjoining zones by impervious strata of shale; that the oil and gas producing zones attain their greatest thickness at or near the intersection of the major and minor axes hereinabove described; that the exact number of separate and distinct oil and gas zones underlying the Santa Fe Springs oil field is unknown; that some of said zones extend under but a portion of the total area known as the Santa Fe Springs oil field; that one or two of said oil and gas zones extend in and under the entire area of said field, the upper zones being smaller in area and underlying only a portion of the total field, while the lower zones are greater in extent and occupy a greater area under said field; that each of the aforesaid zones underlying the Santa Fe Springs oil field varies as to its thickness, its composition and its lateral extent; that said zones are composed of sand, sandy shale and shale, the proportion of sand, sandy shale and shale comprising each of said zones [fol. 226] varying materially from point to point and within short distances, laterally as well as vertically; that the sand- comprising a portion of said zone or zones vary materially in hardness, thickness and porosity between well locations, and within short distances throughout the extent of said zone or zones within said field; that in many instances wells drilled into the same zone in said field within short distances of each other have penetrated formations of entirely different character, one well encountering all shale and sandy shale in a particular zone, while a neighboring well located but a short distance away would encounter all sand with very little shale or sandy shale in the same zone; that the sand or sands composing the oil or gas producing zones underlying the Santa Fe Springs oil field, are made up of grains of an infinite variety of forms and sizes, between which occur pore spaces, voids or interstices filled with oil and gas under high pressure, said pressure being due to the superimposed formation, hydrostatic head, and to the expansive force of the compressed gas in solution with or dissolved in the oil; that the occurrence of oil and

gas encountered and existing in the several zones underlying the Santa Fe Springs oil field is due to the migration of the oil and gas which was originally disseminated throughout the underlying beds when they were in a horizontal position; these underlying beds were disturbed by [fol. 227] earth stresses resulting in the formation of the now existing underlying structure or dome, and the oil and gas under the influence of the surrounding water then migrated toward the higher points of the structure, the percentage of gas in solution in the oil being greater near the top of the structure than lower on the flanks; that the hydrocarbon substances encountered in the several zones of the Santa Fe Springs oil field are under a very high pressure which increases proportionately with the depth of said zone below the surface of the earth. The greater percentage of the gas in said zone or zones, due to said high pressure, exists in solution in the oil, forming a homogeneous liquid body or substance. Because of the fact that the proportion of sand and shale within the various zones varies materially from point to point within short distances, both laterally and vertically, and because of the fact that the porosity, hardness and texture of sand and shale also varies, and because of the fact that the propulsive energy necessary to flow the oil is depleted in overcoming the resistance offered by the hard, compact and non-porous stratas in the sand, the movement of the oil and gas in each zone is retarded and confined to a limited area surrounding each well; that when a well penetrates one of the zones underlying the Santa Fe Springs oil field, the gas pressure in the immediate vicinity [fol. 228] of said zone is released and lowered at the well, the lowering of said pressure causing the oil and gas to move toward the point of low pressure; that the area affected by the lowering of said gas pressure is limited to that immediately surrounding the well and does not affect the entire area of the Santa Fe Springs oil field, nor the entire zone which the well has penetrated; that from the point of low pressure at the well the pressure increases laterally from the well to a point where the equilibrium is not disturbed by the lowering of said pressure by said well. The extent of the area surrounding said well which will be drained of oil and gas, and the point of equilibrium depends upon the formation of the zone penetrated, the proportion

of sand, sandy chale and shale, together with the porosity, hardness and texture of same, the viscosity, permeability and surface tension of the oil, and upon the pressure and temperature existing in the formation.

That the production of oil and gas from any well penetrating any zone in the Santa Fe Springs oil field does not affect the pressure or the production of oil or gas in the entire field—it affects only a small area immediately surrounding the well; in some instances the daily flowing production of oil and gas from a given well in said field has not been affected or decreased by the production of oil and [fol. 229] gas from a well subsequently placed on production from the same zone located within a distance of 200 ft., and in some instances located within a lesser distance; in many instances the initial and subsequent production of such nearby wells brought in at a later date from the same zone is greater than the initial or daily production of the earlier well; that whenever gas is encountered in solution with oil in a natural subsurface formation such as the producing zones of the Santa Fe Springs oil field, it is impossible to produce the recoverable oil in said reservoir without also producing the gas in the proportion in which the gas existed in or with the oil in its original state. There is no known means or method of separating the gas in solution with oil from said oil, so as to leave all or a part of said gas in the underground reservoir and produce the oil with a ratio of gas to oil lower than the original proportion of gas to oil as they existed in the underground reservoir in their original state. In zones such as underly the Santa Fe Springs oil field, the presence of oil without gas in solution therewith would be of no economic value. Without gas in solution with oil it is impossible to produce oil from any of the deeper zones underlying the Santa Fe Springs oil field; and by virtue of the propulsive power furnished by the gas, the production of oil from a well is the primary and most valuable use to which the gas may be put.

[fol. 230] That in the production of oil and gas, the amount of gas produced with each barrel of oil in any particular well drilled into any of the productive zones in the Santa Fe Springs oil field, differs materially from that of any other producing well drilled into the same zone or into any other zone or zones, even though one well may

offset another. One well may produce oil with a much greater proportion of gas to a barrel of oil than a closely adjacent well drilled into the same zone, and to the same depth, the production of oil and the proportionate amount of gas produced with a given quantity of said oil being entirely dependent upon the proportion of gas and oil as it originally occurred in its natural state, and other uncontrollable conditions next mentioned. The proportionate amount of gas produced to each barrel of oil in any particular producing well is spoken of as the "gas-oil ratio." The gas-oil ratio of any well producing from any particular zone in the Santa Fe Springs oil field is dependent upon the original proportion of gas to oil in their natural state, the formation pressure, porosity of the sand, the viscosity of oil contained in same and the pressure differential. The gas-oil ratio or the quantity of gas produced with each barrel of oil in any given well will increase, as the pressure declines, as the life of the well lengthens, and as the quantity of oil pro- [fol. 231] duced from said well declines, therefore, the gas-oil ratio is not an index of production efficiency and is not a constant, but is a variable factor; that the minimum gas-oil ratio may and does vary in any particular well in the Santa Fe Springs oil field from a few hundred to several thousand cubic feet of gas per barrel of oil, and in each case be the most efficient minimum gas-oil ratio for that particular well at that particular time. The minimum gas-oil ratio also varies for different wells in the same field, producing from different zones and from the same zones even though the wells are located within very short distances of each other, such as offset wells. There are many elements to be considered in determining whether a given well is producing on an efficient minimum gas-oil ratio. The difference in this ratio between wells in the same zone and in the same field is due to subsurface conditions over which the operator has no control. That one element to be taken into consideration is the location of the well, due to the fact that wells located on the top or dome of a structure such as exists in the Santa Fe Springs oil field, produce larger quantities of gas to the barrel of oil, but that this cannot be definitely stated as a rule to be applied to all wells, due to variations in various subsurface conditions; that other factors are the mechanical condition of the well, such as

[fol. 232] the depth and size of the casing, the type and size of perforations in the oil string, the age of the well and the composition of the formation or zone from which the well is producing; that the establishment of a definite and uniform gas-oil ratio for all wells in the Santa Fe Springs oil field, or the establishment of a definite and uniform gas-oil ratio for each and every well in said field is arbitrary and unreasonable and is not in accordance with the most conservative and economical methods of producing oil in said field, and will not effect the conservation of the gas contained in the sand underlying said field; that the fixing of a gas-oil ratio for any zone in the Santa Fe Springs oil field would be highly impracticable and impossible of enforcement without causing the complete cessation of the production of oil and gas from many wells in said field; that the fixing for any definite length of time of a gas-oil ratio on any particular well would likewise be unjust and unequitable by reason of the continual changing conditions in said well.

That affiant has made a careful and thorough study and analysis of each of the wells in the Santa Fe Springs oil field, complained of by plaintiffs, which are operated by the defendants herein on whose behalf he makes this affidavit, and considering all standards known to the petroleum industry in determining the economical and efficient produc-[fol. 233] tion of oil and gas, affiant states that in his opinion each of these wells is producing oil and gas in an efficient economical and workmanlike manner in accordance with the best known usage in the petroleum industry, and in accordance with the laws of the State of California; that each of said wells in producing no more gas than is reasonably necessary in the production of oil in the quantities that are now being produced therefrom; that none of said defendants are producing any more gas from any of said wells than is reasonably necessary in the production of oil therefrom; that the amount of gas being produced from each of said wells is no more than should safely, reasonably and economically be produced, and is not jeopardizing or interfering with the operations or any correlative rights of any other operator or operators in the same zone or zones in the Santa Fe Springs oil field, and that the quantity of gas being produced from each of said wells is not jeopardiz-

ing the efficiency of the production of any wells surrounding or off-setting these defendants' wells; that said wells and each of them are in most instances producing oil and gas in a more efficient manner and with a lower gas-oil ratio than off-set wells owned and operated by other producers of oil in the Santa Fe Springs oil field, and that the production of gas from each and every one of the said wells of said defendants is not inefficient or wasteful and is not [fol. 234] unreasonably or otherwise affecting the rights of other operators in the Santa Fe Springs oil field to produce oil and gas in an efficient manner.

That there has been advanced in the petroleum industry the theory that gas produced from a zone after being stripped of all its hydrocarbon content might be returned to an adjacent depleted oil zone by injecting the same therein and thereby conserving said gas for production and use in the future, this has been spoken of as "storage;" that the same theory has been advanced regarding partially depleted oil sands, the theory being that the gas could be injected into said sands and thereby duplicate the natural subsurface conditions and that such injected gas would again propel oil from the partially depleted sand to the surface. This has been spoken of as "repressuring." The success of either undertaking in the Santa Fe Springs oil field is conjectural and not capable of proof, and would be dependent upon the composition of the zone into which the gas was to be injected, the proportion of sand, sandy shale and shale, the porosity, hardness and texture of same, upon the extent of the area depleted, the water conditions in said zone and upon numerous other conditions extending throughout the zone. That to affiant's knowledge, no effort or experiment has been made in the Santa [fol. 235] Fe Springs oil field relative to representing or storing of gas into any of the various oil zones underlying said field; that no data is available from which the success, practibility or impractibility of such injection or return of gas for repressuring or storage can be determined as to the Santa Fe Springs oil field and that the operator has no assurance that repressuring would increase the flow of oil from the zone into which the gas was injected; that the returning or injection of gas produced in the Santa Fe Springs oil field for repressuring or storage is impractica-

ble and could only be done, if such were possible, at an expense that would far exceed any benefits that would be derived thereby or therefrom; that it could only be done to a very limited extent, and that under the most favorable conditions assuming such injection or return of gas possible, only a minor fraction of the gas that will be produced in said field could be so injected; that it is impossible to compress the gas back to the original pressure and volume in which it existed in its natural state, or to reproduce the original reservoir conditions which cause the flow of oil; that the cost of such repressuring and returning of gas for storage in said field would greatly exceed the value of the gas which could be recovered from the zones in which it had been stored, if any gas at all could be recovered, and would greatly exceed any other benefits which might be [fol. 236] derived from such returning or injection for repressuring or storage.

Referring to and touching on the matters set forth in the affidavit of Read D. Bush filed in this action on behalf of the plaintiff, this affiant state that it is true that when a well penetrates a zone in the Santa Fe Springs oil field the gas pressure is released about or in the immediate vicinity of the well, thereby creating an area of low pressure immediately surrounding the well, but that as affiant has hereinbefore stated, it is not true that such well causes a release of pressure throughout the entire zone which it is penetrating; that it is not true that the opening of a well in any zone in said field disturbs the gas pressure in all parts of the zone; that as affiant has hereinbefore stated, such disturbance is confined to a comparatively small part of the zone in the immediate vicinity of the well and that it is not true that the gas produced or allowed to escape from a well penetrating a zone is replaced by gas and/or oil moved or drawn from all parts of the zone by the expansion or propulsive force of gas or otherwise, but that the gas produced is replaced by gas and/or oil moved or drawn from only a comparatively small part of the zone immediately surrounding such well. That the oil, and gas in solution in the oil, and free gas which might exist in any zone underlying any gas surface area is fixed in place [fol. 237] and the oil and gas move throughout the voids or interstices of the zone sand within only a limited dis-

tance in the immediate area surrounding the well when the pressure is released by said well penetrating the zone, and then only; that the increase in flow of gas through and out of any well or wells penetrating the zones in the Santa Fe Springs oil field above a ratio of two thousand five hundred (2,500) cubic feet of gas to a barrel of forty-two gallons of oil at the same time, does not reduce in any unreasonable or inefficient manner the untimate recovery of the oil in the sands of any such zone or zones; that the extent of the ultimate recovery of oil from the sands of said field is not reduced with the increase in the rate of the flow of gas, and the rate of flow of gas or the ratio of production of gas to the oil does not affect or control the untimate recovery; that there can be no proper back-pressure equally applicable to all wells in the Santa Fe Springs oil field or to any distinct group of wells in said field. The proper back-pressure for said wells must be ascertained by research for and experimentation with each well, and the proper back-pressure for one well will not necessarily or ordinarily be the proper back-pressure for any other well, even in the same zone. The gas-oil ratio will not, in more than a few cases, be governed or influenced by back-pres- [fol. 238] sure. In many cases in said field the increase of back-pressure has caused an increase in the gas-oil ratio. That affiant has noted and studied the back-pressure maintained on each of the wells complained of in plaintiffs' complaint, operated by the defendants on whose behalf he makes this affidavit, and in his opinion the back-pressure so maintained on each well is the proper one for the most economical and efficient production of oil and gas from said well.

That each and every withdrawal of gas by one operator through a well entering the sand of any one of the zones in the Santa Fe Springs oil field does not reduce the supply of gas available to each other such operator of a well in said zone, and does not increase the difficulty of each operator in obtaining oil and gas through each other well drilled into the said zone, and that each and every such withdrawal of gas does not and will not reduce the gas pressure in the said zone sand throughout the whole or entire area, or any considerable area of said zone, or any part other than the part in the immediate vicinity of said well as has hereinbefore been stated.

That in the sands of portions of the Bukbee and Nordstrom zones and of the entire O'Connell and Clark zones in the Santa Fe Springs oil field are large quantities of oil and gas under high pressure and the expansion of said [fol. 239] gas carries the oil to the wells penetrating said zone or zones, but the oil is not propelled ahead of the gas by the expanding gas, nor is the oil produced by suction or vacuum in flowing wells; the only gas that carries the oil to such wells is the gas in solution with the oil which originally was confined in the formation in the immediate area surrounding the respective well.

In my opinion, a uniform gas-oil ratio for Santa Fe Springs oil field, or a uniform gas-oil ratio for any zone in said field or for any part of said field or for any part of any zone in said field, would be unreasonable, arbitrary, oppressive and discriminatory in many instances, because the gas-oil ratio in different zones, varies, and varies in different parts of the same zone and also varies and changes in each well during the life of the well, in that some wells would have to be shut down. The application of a uniform gas-oil ratio of 2,500 cu. ft. of gas per bbl. of oil, or a ratio of 3,000 cu. ft. of natural gas per bbl. of oil throughout Santa Fe Springs oil field or any zone in said field from which any of the defendants upon whose behalf this affidavit is made have producing wells, would require the shutting down and killing of a number of said wells, to wit, those operating above said gas-oil ratio, the gas-oil ratio of which could not be reduced to such gas-oil ratio. When these wells have been shut down or killed, no one can [fol. 240] forecast definitely what the performance of the well will be when it is opened up. Past experience has shown some wells have been irreparably injured by being shut in, in that they have not returned to their original condition of productivity when opened up at a later date. It is safe to state that, if an order requiring such uniform gas-oil ratio were put into effect, a number of producing wells of said defendants would have to be shut down or killed, in that they could not be made to operate at such gas-oil ratio, and that such wells would be irreparably damaged or injured in that their production could not be restored should they be opened up at a later date.

None of said defendants is unreasonably wasting, or wasting, in the opinion of affiant, any natural gas produced or received by any of them. Permitting more than 10% of the natural gas produced from any oil well in said Santa Fe Springs oil field, either before or after the removal of the gasoline therefrom, does not constitute, in the opinion of affiant, unreasonable waste, or waste, under the circumstances existing at Santa Fe Springs, and surrounding the production of oil and gas by said defendants. After the natural gas produced by them has served its primary use of flowing and lifting oil to the surface, and has been manufactured into gasoline, and so much of the resulting dry gas as can be used in field op- [fol. 241] erations is so used (as has been the case), it is necessary for said defendants to permit the remainder of such resulting dry gas to escape into the air, because the same cannot be sold and cannot be economically used or disposed of. To permit such remainder of such resulting dry gas to escape into the air is not, under the circumstances, unreasonable waste, or waste.

Roy G. Mead

Subscribed and sworn to before me this 10th day of March, 1930. Vida D. Roberts, Notary Public in and for the County of Los Angeles, State of California. (Notarial Seal.)

[fol. 242] EXHIBIT 14 TO PETITION

IN THE SUPERIOR COURT OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

Affidavit of G. R. Kenny on Behalf of Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Co., Inc., and Wilshire Annex Oil Company

STATE OF CALIFORNIA,
County of Los Angeles, ss:

G. R. Kenny being first duly sworn deposes and says:

That he was graduated from the engineering division of Iowa State College in 1906. That he is, and since August of 1922 has been, engaged in practice in the city of Los Angeles as a consulting engineer specializing in problems of public utility service including those involving the production, transmission, utilization of and demand for artificial and natural gas.

That prior to 1922 he was employed as follows: for nine years by various public utility companies, including San [fol. 243] Joaquin Light and Power Corporation, serving artificial and natural gas, electric energy and water in California for six years; for two years by the Railroad Commission of the State of California in its Gas and Electric Division; and for about five years by engineering firms, including the Arnold Company of Chicago, Ford, Bacon & Davis of New York, H. P. Gillette and others, on problems of gas and electric utility companies.

That as a Consulting Engineer in recent years he has been employed: in surveys of natural gas supply; in other analyses for various gas companies; in reporting on gas companies for financing and sale purposes; and in proceed-

ings effecting the rates for and service of gas by various cities including employment by the city of Los Angeles, county of Los Angeles, and other associated cities in the cases leading to the decision by the gas companies to begin the service of straight natural gas in Los Angeles; which cases required a most exhaustive analysis of the production, transmission and utilization of natural gas in California.

That affiant realizes the importance of conservation of natural resources. That the natural gas so far discovered and utilized in the counties and cities in the southern portions of California, is what is known as casing head gas and is found in the earth almost wholly in liquid form with oil, and cannot be recovered without at the same time re- [fol. 244] covering the oil with which it is so found. That the oil cannot be recovered separately from the gas. That the production and utilization of natural gas as practiced in the counties of Ventura and Los Angeles, in California, therefore, differs from that in other sections of the United States. That the natural gas discovered and utilized in the states of West Virginia, Kentucky, Indiana, Oklahoma, and Texas, and in many other portions of the United States, is not associated with oil, but is found in stratas of the earth and is dry natural gas under pressure and, therefore, can be withdrawn and used as and when required without effecting the production of oil in any way.

The natural gas recovered in Southern California is a by-product of the recovery of oil and is incidental thereto and would not now be available had not oil which is many times more valuable and important been discovered and produced in great quantities. If the companies and individuals producing oil from wells in Los Angeles and Ventura Counties, California, should cease to so produce oil it would result in an immediate shortage of natural gas, and its general distribution and use in Los Angeles County would be no longer possible. The cost of drilling wells into the deep sand zones from which most of the oil and gas is now being recovered is so great and the cost of operating [fol. 245] them after completion so high as to make it uneconomic to so drill and operate them for the recovery of the gas available alone. The gas could not profitably be produced separately and transmitted at a cost less than that of artificial gas manufactured at the centers of distri-

bution and no one could be found who would undertake to drill and operate the wells necessary for such recovery from the deep sand zones unless they could at the same time recover large quantities of the vastly more valuable oil and gasoline associated with the gas. The oil produced from the oil wells in Los Angeles and Ventura Counties, California, has a money value many times that of the natural gas produced with the oil. Oil, and products derived from oil, may be used to replace natural gas for all purposes for which natural gas is used, and oil and its products are useful for many purposes for which natural gas or products derived from it cannot be used.

While the incidental natural gas recovered in connection with the recovery of oil is a cheap and useful fuel to the extent of the market needs thereof, there is no market need or demand for, or useful purpose to which any of the dry gas which the defendants permit to escape into the air, may be put. It must be used as it is produced and cannot be stored except at a cost which makes it commercially very unprofitable. The production of oil in California is of much [fol. 246] greater importance, value and benefit to the people of California than is the production of natural gas. Natural gas is not essential to the continued operation or prosperity of the gas companies now engaged in distributing gas, nor to the industries using it as a fuel nor to the welfare of the domestic, commercial and other consumers making use of it. There is an abundant supply of cheap fuel oil and cheap electric power generated both by steam and hydro-electric generating plants. Many companies and individuals have in good faith entered into and have continued for a long time in the business of the recovery of gas and oil at Santa Fe Springs and elsewhere in Southern California and for a long time prior to the use of natural gas to any great extent for industrial, commercial or domestic purposes in the state. If the companies engaged in the production of oil at Santa Fe Springs who have no market for their gas cannot continue to produce such gas, they cannot produce oil, but will be compelled to abandon the operations of their properties, and see other companies and individuals who have a market for their gas withdraw all the gas and oil in the immediate vicinity thereof and from the oil and gas sands into which their wells penetrate, and their investments in such wells and appurtenant facilities and their

leasehold estates rendered valueless, and the value of the lands on which such companies have drilled and are oper- [fol. 247] ating oil wells will also thereby be greatly reduced.

The present excess production of gas over and above the requirements for beneficial uses has resulted from the drilling of new oil wells into extremely productive oil sands in various oil fields within the past few months, and not from the operation of wells previously drilled. But if such new wells had not been drilled into such oil sands within the past few months there would now be a shortage of gas for beneficial uses rather than a surplus. Regulation of the drilling of new oil and gas wells and of the development of new oil and gas fields or new oil and gas producing zones in existing fields is a more effective method for controlling the rate of production of gas associated with oil than preventing or decreasing oil and gas production from wells already drilled and being efficiently operated by the owners of such wells. I am of the opinion, and it is the generally accepted view, that such control of the drilling of new wells and development of new fields or zones will more effectually conserve the gas and oil contained in the sands until the demand equals the supply of both oil and gas, and will be more equitable as between owners and operators of lands in the various fields and the companies and individuals drilling and producing oil and gas from such lands.

[fol. 248] There is a constant fluctuation in the volume of gas available from each of the many existing producing oil fields and the known supply of both oil and gas is being constantly increased by the discovery of new fields and new oil and gas sands in old fields. No one knows or can tell what the available supply of either is or when, if ever, it or either will be exhausted. All of the needs of gas companies and distributors in Southern California for natural gas are supplied by the producing oil companies, under contracts which, by their terms, require that minimum quantities of gas be taken and paid for. Such contracts by their terms are for several years ahead. There is now no commercial market or outlet or beneficial use known to affiant for any of the resulting dry gas which the defendants, Wilshire Oil Company, Inc., Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petro-

leum Company and/or Wilshire Annex Oil Company are releasing or permitting to escape into the open air.

Artificial gas manufactured from oil or coal is used throughout a great portion of the United States for fuel for domestic and commercial lighting purposes, cooking purposes, water heating, space heating and other uses and such uses are steadily increasing. All consumers of gas in Southern California, were formerly supplied entirely with [fol. 249] such artificial gas until 1914. The cities of Los Angeles, Santa Barbara and other cities have been supplied with straight natural gas only within the last few years. The city of San Diego is supplied with artificial gas manufactured from oil. All of the cities in the counties of San Francisco, San Mateo, Santa Clara, Alameda and Contra Costa have heretofore been supplied with artificial gas manufactured from oil. The change in serving gas consumers with natural gas instead of artificial gas, or a mixture of the two, has not greatly reduced the rates per M. C. F. which the consumers pay for gas.

The supply of natural gas available for distribution in the several counties in Southern California has exceeded the requirements for all purposes for which such gas is used since 1920. The gas companies serving and distributing gas in the city of Los Angeles argued before the Railroad Commission of the State of California in 1925 that the assured supply of natural gas was not and had not been sufficiently uniform to warrant them in beginning the service of straight natural gas to their domestic consumers. These gas companies have heretofore installed manufacturing plants and equipment and are now making plans for further equipment for future service of artificial gas in the territory now served by them with natural gas, so that if it again becomes necessary they can manufacture all of [fol. 250] the gas which is required by their consumers.

For use by industrial establishments in the several counties of Southern California natural gas must compete in price with cheap fuel oil and cheap electric energy for most purposes for which such natural gas is used. There is an abundant supply of all. The price of fuel oil fixes the rate at which such natural gas can be sold. The demand for gas for domestic, commercial and industrial uses is much greater in the winter months of any year than in the summer months. The demand for gas varies from day to day

and from hour to hour. While natural gas is sold to industrial establishments at rates which will bring the cost to the consumer below that of fuel oil, such price is upon a shutoff basis, so that as the demand for gas by domestic users increases the consumption by industries can be cut down immediately and without notice, which frequently happens during winter months. Industrial plants and large consumers of natural gas usually are also equipped to use fuel oil so that same can be substituted one for the other at any time. The industrial establishments and utilities operating steam electric generating plants equip their furnaces to burn either oil or gas interchangeably, and keep a supply of oil on hand so that they may be able to instantly change over from burning natural gas to burning oil. It [fol. 251] is the practice of the Gas Administrator of the State of California to order industrial establishments using natural gas as a fuel to discontinue such use and begin burning oil, and to order the gas companies to discontinue serving them with natural gas whenever in his opinion a shortage of gas exists or is threatened. Many industrial establishments are compelled to change over to oil fuel on cold days in winter or when emergency or other interruptions in the supply of gas occur. The newer steam electric generating plants being constructed in Southern California are designed and equipped to burn either gas, oil or powdered coal, interchangeably. There are many industrial establishments in Southern California burning oil exclusively in furnaces which are not equipped for burning natural gas and are not supplied with natural gas, even though same is available. I know of no industrial establishment in Southern California which is within an area served by natural gas, which is dependent upon natural gas for fuel or which would be compelled to cease operations if it had no natural gas.

While there are no deposits of coal in California and no coal will be brought into Southern California for use as fuel for industrial establishments or at steam electric generating plants as long as there is a supply of cheap natural [fol. 252] gas and oil, there are vast deposits of coal in Utah, Oregon, Washington, British Columbia and other states, and when needed coal can be brought to Los Angeles Harbor and made available for use in Los Angeles County and other counties of Southern California at a cost not

greatly in excess of the cost of gas or oil at prices which have prevailed in Los Angeles County for fuel oil and gas. The production of oil of fuel grades now greatly exceeds the demand and the means of sale and distribution of this surplus is one of the present serious problems of the oil industry. There is at present approximately 110,000,000 barrels of oil of fuel grade in storage in California. The fuel value of this stored fuel oil is equivalent to that of about 600,000,000 M. C. F. (thousand cubic feet) of natural gas or about fifteen times the consumption of natural gas for industrial uses in 1928. Because of the surplus of fuel oil it may be purchased in quantities at less than 50¢ per barrel at Los Angeles Harbor.

Certain of the cities located in Los Angeles County were served with artificial gas manufactured from coal at an early date. After the process of producing artificial gas directly from oil was perfected, this method was rapidly adopted throughout California. When natural gas service was first distributed to the cities of Los Angeles County, [fol. 253] every community and industry of any consequence in that county which was being served with gas was being served with artificial gas manufactured from oil in oil gas generators. This gas was and is popular for lighting, cooking, heating water and other purposes and to some extent for heating houses and other buildings.

The cities of Los Angeles and Pasadena and other cities in Southern California were being served with a mixed artificial and natural gas having a heating value of about 820 B. T. U. per cubic foot from 1916 to 1927, and the cities of Los Angeles, Pasadena, Santa Monica and certain other territories in Los Angeles County were finally placed on straight natural gas service in 1927, and the city of Santa Barbara was first served with straight natural gas in 1928, but very little of the natural gas produced in the Santa Fe Springs Oil Field has ever been used in any of said cities; nor was even such small part furnished except during recent years.

At the present time the gas companies serving gas in the counties of Santa Barbara, Ventura, Los Angeles, Orange, San Bernardino and Riverside are under common control, and they have invested in artificial gas generating plants and in lines and equipment for the transmission and distribution of gas approximately $150,000,000. Their re-

quirements for gas for use as industrial and domestic fuel [fol. 254] is only about 85,000,000 M. C. F. per annum. No natural gas is used for lighting except to a negligible degree. The principal source of supply of this natural gas distributed by these companies in the several counties referred to above has been casing head gas produced from oil wells which were necessarily at the same time producing large quantities of the much more valuable oil. The gasoline is taken from such gas before delivery to any of such gas companies. Natural gas was first transmitted from Signal Hill oil field for use as an industrial and domestic fuel in 1921; from Huntington Beach in 1921, and from Santa Fe Springs oil field in 1922, but has not been so transmitted to any great extent from Santa Fe Springs oil field at any time. Natural gas was first transmitted from Ventura oil field for use in Los Angeles county late in 1925. There are no extensive natural gas fields in which natural gas occurs separately and not associated with oil in any of the counties referred to above. There are no known deposits of natural gas not associated with oil in California, except the extensive deposits of such free natural gas which exist in Kern County, California, and the San Joaquin Valley, in California. Some large natural gas wells, not producing oil, have been drilled in Kern County, but production of natural gas from these wells is available for use for [fol. 255] industrial and other purposes when the supply of casing head gas from producing oil wells is not adequate to meet the requirements of the industrial and domestic consumers of natural gas. The extent of this supply of natural gas is very large and should last for many years. The total volume of natural gas available for distribution by gas companies has at all times since such distribution was begun exceeded the total actual requirements of the companies. During the period from 1920 to 1927 the field production of oil and natural gas from oil wells producing oil in Los Angeles County has been in excess of the natural gas requirements of the counties of Los Angeles, Orange, Riverside and San Bernardino for gas for all useful purposes.

The natural gas produced in Southern California has borne a more or less constant relationship to the total amount of oil produced in the operations of the oil companies. The two substances are found together and must

be produced together, and neither can be produced without the other. The natural ratio of production of one to the other varies greatly.

Commercial sales of natural gas, including sales to hotels, restaurants, minor industrial establishments and office buildings, for heating form a relatively small percentage of the total sales. Some of the office buildings in the city of Los Angeles use gas under boilers for heating the [fol. 256] building, some use gas and oil interchangeably, but the majority use oil exclusively because at current prices it is a cheaper fuel and a continuous supply of natural gas cannot be guaranteed. The heating plants at Los Angeles City Hall and at the Los Angeles County Hall of Records and Court House use gas at certain seasons and certain hours, but oil is used when considerable heat is required because at current prices it costs less per day to heat with oil than with gas.

Many of the industrial establishments in Southern California burn oil or use electric power almost exclusively, because they object to the shut-off provisions of the gas rates, because a continuous supply of gas cannot be guaranteed, and because it is economical to do so. The industrial establishments which are not served on the shut-off basis constitute only a small percentage of the total industrial gas load, and it is therefore possible to reduce the total demand for gas to a quantity not greatly in excess of the requirements of the domestic and commercial users during cold periods in winter or in emergencies. Consumption for industrial uses varies continually from month to month and from year to year with a uniform annual increase except for curtailment due to domestic demand in cold weather, variation in requirements of energy for steam electric [fol. 257] plants burning gas, due to variation in water supply at hydroelertric plants, and variations by large industrial users who shut down their operations at times.

There are no new markets for natural gas in Los Angeles and Ventura Counties. Consumption by existing classes of consumers might be stimulated by lower rates but not sufficiently to absorb the supply.

It would be impossible to reduce the field production of casing head gas without thereby also decreasing the flow of oil, and it would require a constant change in the control of gas production so as to prevent any waste of gas with-

out serious shortage of gas resulting at centers of distribution at various times. The demand for gas for fuel purposes fluctuates widely seasonally, daily and yearly. It would be necessary to fluctuate the production of oil wells more or less concurrently with the fluctuation in the demand for gas in order to meet the demand and to prevent any waste. Gas stored in oil fields or returned to the sands by repressuring would be of little value in taking care of daily fluctuations. Holder storage at the centers of distribution, manipulation of the shut-off industrial load, operation of artificial gas works and variations in gas transmitted from the fields have been relied upon in the past to equate the hourly supply to the hourly demand. [fol. 258] The demand for gas in cities during the early morning hours of peak delivery days may be less than 25% of the average hourly demand for the day and the maximum demand for the day which usually occurs during the early hours of the forenoon may exceed 200% of the average for the day.

As, if and when the supply of casing head gas begins to decline permanently the operation of the gas companies can and will vary from time to time to meet the situation. By mixing gas it will be practical to make use of all natural gas still being produced. Without any material increase in cost, industrial establishments, steam electric generating plants, etc., using gas can and will use oil or coal for fuel exclusively, electric energy can and will be used almost exclusively for power purposes, electricity can and will replace gas for fuel for many heating purposes, and the requirements of all domestic consumers can and will be taken care of by artificial gas or mixed artificial and natural gas. Most of these changes would not require consumers to install new equipment.

As each new oil field has been developed in the Counties of Ventura and Los Angeles there has been a period of flush production when the quantity of gas produced exceeded the demand, but in each case the production has declined within a few months to a more or less settled total. [fol. 259] During such periods of flush production it is uneconomical to attempt to conserve any large part of the natural gas which is necessarily produced with the oil for commercial uses or purposes. In order to follow this flush

production from field to field the gas companies engaged in transmitting gas must install their compressor stations in small readily movable units and move these units from field to field as the production varies. Such moving is expensive and requires time, and it would be bad business policy and unprofitable for a gas company to attempt to install a compressor station in any field which would take care of the flush production, even if there were a demand for the gas, because the investment required would be used for such a short period and the cost would be prohibitive. That the Public Utility Gas Companies, distributing gas in Southern California, have entered into contracts with the major oil companies, (Associated Oil Company, Standard Oil Company of California, Union Oil Company, Texas Company, Shell Oil Company, Richfield Oil Company, General Petroleum Corporation) or some or all of them, for almost their entire requirements of natural gas for distribution in Southern California; that said Public Utility Gas Companies have installed facilities for the purchase and receipt of gas from said major companies, or some or all [fol. 260] of them at Long Beach and at Ventura Avenue Field, Ventura County, California, from which fields the major portion of their requirements for distribution in Southern California are at present, and for some time past, have been supplied; that said Public Utility Gas Companies will not until the expiration of said contracts purchase or distribute to the public any greater volume of gas from the Santa Fe Springs Oil Field that is now being received therefrom and will not receive any greater volume therefrom until the depletion of gas produced from said Long Beach and Ventura Avenue Oil Fields to the point where the same fails to meet their said requirements for distribution in Southern California.

That the public utility gas companies, distributing gas in Southern California, purchased from oil operators in Santa Fe Springs Oil Field, other than the defendants in whose behalf this affidavit is made, from June 1929 to December 1929, inclusive, the respective percentages of total net gas produced from said Santa Fe Springs Oil Field as follows:

June	7.3%
July	4.8%

August	4.4%
September	9.8%
October	7.2%
November	14.3%
December	13.3%

[fol. 261] Affiant has read the affidavits and complaint on file in the above entitled action; that the said affidavits have followed substantially the pleadings used in the action of State of Indiana vs. Ohio Oil Company and attempt to show that the conditions which existed in the State of Indiana were similar and are applicable to the Santa Fe Springs Oil Field and the consumption of gas in Southern California; that from the pleadings in said action, the State of Indiana vs. Ohio Oil Company, it is apparent that there existed a gas-bearing strata in the State of Indiana which covered several counties in area and that numerous industries established themselves in said locality depending upon said gas supply, but in California such facts do not exist, insofar as the Santa Fe Springs Oil Field or the gas produced therefrom is concerned; that the coming into the State of California in recent years of manufacturing enterprises and the investment of large sums of money in said manufacturing enterprises, caused a substantial increase in the population of Southern California; that the establishment of said enterprises and the investment of money therein and the said increase in population was not, in affiant's opinion, caused by the production of availability of gas from the Santa Fe Springs Oil Field, but the establishment of said enterprises, investment of money and the increase in population was caused almost entirely by [fol. 262] market conditions, labor conditions, harbor and transportation facilities, water supply, cheap electric power, fuel oil supply, climatic conditions and many other factors; that said enterprises, or money invested therein, and enterprises for the production of electrical power on property at or near Santa Fe Springs Oil Field are not dependent for their continued preservation *or preservation* or for present value or values of their properties upon the natural gas available or supplied from the Santa Fe Springs Oil Field. That the wealth of the State of California and its revenue derived from taxation by reason of

the increased population and various manufacturing plants has not been increased, in affiant's opinion, to any appreciable degree by the existence of natural gas produced from the Santa Fe Springs Oil Field and will not be curtailed by reason of the present operations of the oil producers in said field; that numerous manufacturing enterprises and a great influx of population in Southern California developed and occurred prior to 1925 so that the same conditions with reference to said enterprises, money investments therein and increase in population as have existed since 1923, existed prior to said date.

That oil cannot be produced in Santa Fe Springs Oil Field without the production of gas therefrom; that if the [fol. 263] production of gas is curtailed in Santa Fe Springs Oil Field to a point where oil cannot be profitably produced in said field or if the production of oil in said field is severely curtailed by the curtailment of production of gas therefrom, the general economic conditions in Southern California will be severely affected and thousands of men, skilled and unskilled, employed in said oil field, petroleum industries, such as refineries, etc., and in businesses conducted by reason of development in said field and incidental thereto will not be able to find employment in Southern California at remunerative wages and unemployment in Southern California will greatly increase with the necessarily consequent depression of business in Southern California, which unemployment will greatly exceed any unemployment occasioned by any effect which may result from the blowing of any natural gas into the air in the Santa Fe Springs Oil Field.

That it cannot be reasonably anticipated that the rates of public utility gas companies in Southern California, if they at a later date manufacture the gas consumed by industrial and domestic consumers, will increase to any material degree or prohibit the use of such manufactured or mixed gas as a fuel for industrial or domestic purposes.

G. R. Kenny.

Subscribed and sworn to before me this 10th day of March, 1930. Vida D. Roberts, Notary Public in and for the County of Los Angeles, State of California. (Notarial Seal.)

[fol. 264] EXHIBIT 15 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiff,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

Amendments to Complaint for Injunction

Come now the People of the State of California, by Fred G. Stevenot, Director of Natural Resources of said state, and by leave of court first had and obtained file these their amendments to their complaint herein and allege:

Amendment I

That plaintiffs hereby amend said complaint by adding a new and additional paragraph thereto numbered 1-a to read as follows:

1-a. That the true name of the defendant sued under the fictitious name John Doe One Company is Bardeen Oil Company; that the true name of the defendant sued under the fictitious name John Doe Two Company is Italo-Petroleum Corporation of America; that the true name of the defendant sued under the fictitious name Richard Roe I is A. Wardman; that the true name of the defendants sued under the fictitious name John Doe York and Richard Roe Smullen is York and Smullen, a corporation.

[fol. 265] Amendment II

That plaintiffs hereby amend said complaint filed herein by adding a new and additional paragraph thereto numbered 12-a to read as follows:

12-a. That attached hereto and marked Exhibit "B" is a list of certain wells from which, as plaintiffs are informed and believe, the gas was at the time of the filing of the com-

plaint herein, ever since has been and now is being so unreasonably wasted, together with a description of the respective locations and a statement of the approximate amount of gas taken from said wells under each lease and from each zone of said oil field and so unreasonably wasted during each twenty-four (24) hours, together with a list of the names of the operators of each such well who are causing the gas from the well to be blown and released into the air, and that the wells so located and listed on said Exhibit "B" are in addition to the wells located and listed on Exhibit "AA" attached to the complaint herein, and the said Exhibit "B" is hereby added to the said Exhibit "AA." That on said Exhibit "B" there is shown opposite each of said wells the production gas-oil ratio of each of said wells in thousands (M.C.F.) of cubic feet, the figure given being the number of thousands of cubic feet of gas produced to each barrel of oil from the same well at the same time.

[fol. 266] That attached hereto and marked Exhibit "C" is a list of the wells of the defendants Bandini Petroleum Company, George F. Getty, Inc., Shell Oil Company, Standard Oil Company of California, Twin Bell Oil Syndicate and Universal Consolidated Oil Company, from which the gas was at the time of the filing of the complaint herein, ever since has been and now is being so unreasonably wasted, and which were referred to generally in Exhibit "AA" attached to the complaint herein. That on said Exhibit "C" hereto attached is a description of the respective locations and a statement of the approximate amount of gas taken from each well therein mentioned under each lease, and from each zone of said oil field, and so released into the open air and thereby unreasonably wasted during each twenty-four (24) hours at the time of the filing of the complaint herein. That on said Exhibit "C" there is shown opposite each of said wells the production gas-oil ratio of each of said wells in thousands (M.C.F.) of cubic feet, the figure given being the number of thousands of cubic feet of gas produced to each barrel of oil from the same well at the same time.

That as plaintiffs are informed and believe the quantity of natural gas which may be blown or released to the air from any well in said oil field, either before or after re-

[fol. 267] moving the gasoline from said natural gas, without constituting unreasonable waste of the natural gas in said zone of said oil field from which the said natural gas is derived, will not in the case of any well exceed ten (10%) per cent of the natural gas as the same is produced from each such well with the oil brought to and out of each such well with the said gas.

Plaintiffs are informed and believe, and upon and according to their information and belief allege that each of the defendants named in Exhibit "AA" or "B" or "C" as blowing or releasing gas to the air was at the time of the filing of the complaint herein and is now blowing and releasing to the air from each defendant's well or wells in the daily quantity stated in said exhibits, which said quantity from each well was and is more than ten per cent of the total gas produced from the said well, and that the quantity of oil and gas produced, the quantity utilized, and the quantity blown to the air from day to day is peculiarly within the knowledge of the defendant operator operating the well, as alleged in said complaint and more specifically stated in said Exhibits "AA," "B" and "C."

That on map Exhibit "A" attached to the complaint are shown the surface boundaries of the various parcels of land in separate ownership in said area of Santa Fe [fol. 268] Springs Oil Field, and the location of the oil and gas wells therein at the time of filing said complaint.

James S. Bennett, Attorney for Plaintiffs. U. S. Webb, Attorney General of the State of California. George R. Larwill, of Counsel.

STATE OF CALIFORNIA,
County of Los Angeles, ss:

James S. Bennett, being by me first duly sworn, deposes and says: That he is the attorney for the plaintiffs in the above entitled action, and for the Director of Natural Resources of the State of California named as relator in the above amendment to the complaint, and as such in charge of the said action on behalf of the plaintiffs; that the said Fred G. Stevenot, relator as aforesaid, is absent from the County of Los Angeles; that affiant is better informed in relation to the matters and things stated in said amendment than said relator; that he has read the fore-

going amendment to the complaint and knows the contents thereof and that the same is true of his own knowledge, except as to the matters which are therein stated on his information and belief, and as to those matters that he believes them to be true; that affiant makes this verification for and on behalf of the People of the State of California.

James S. Bennett.

[fol. 269] Subscribed and sworn to before me this 19th day of February, 1930. Louise M. Hilt, Notary Public in and for the County of Los Angeles, State of California. (Seal.)

STATE OF CALIFORNIA,
County of Los Angeles, ss:

R. W. Walling, being first duly sworn, deposes and says: He is and was at the times above mentioned in the amendment to the complaint herein a field engineer in the office of the State Oil and Gas Supervisor; that he has checked Exhibits "B" and "C" hereto attached and that the wells listed in said Exhibits "B" and "C" were on the 12th day of September, 1929, blowing and releasing natural gas to the air in the quantities in said Exhibits mentioned, and that the list of operators, leases, wells, zones, locations and descriptions, oil-gas ratios and quantities of gas blown to the air as stated upon said Exhibits "B" and "C" are true and correct and said Exhibits should be attached to and considered with Exhibit "AA" attached to the complaint herein.

R. W. Walling.

Subscribed and sworn to before me this 19th day of February, 1930. Louise M. Hilt, Notary Public in and for the County of Los Angeles, State of California. (Seal.)

(Here follows Exhibits B and C, side folios 269a and 269b.)

EXHIBIT "B"

As of Sept. 12th, 1929. SANTA FE SPRINGS.
(Wells completed and producing as of 9/12/29 and not included in original "AA."

Defendant Company	Lease Name	Well No.	Zone	Location and
Ambassador Pet. Co.	Baker	No. 12	Clarke	65′ S. & 74′ W. from C/L of intersection of A. T. S.
Associated Oil Co.	Dewenter	No. 8	O'Connell	235.3′ S. from North Property line & 210′ W. of C/
General Pet. Corp.	S. F.	143	O'Connell	548′ N. & 359′ W. from C/L Telegraph & Central—
"	S. F.	145B	O'Connell	90′ N. & 203′ E. from C/L Butler & Telegraph Roa
"	S. F.	161B	O'Connell	191′ S. & 149′ W. from C/L Murray Ave. & Clark S
"	S. F.	152E	O'Connell	187′ S. & 562′ E. from C/L Butler & Telegraph Roa
"	S. F.	145C	Buckbee	310′ N. & 199′ E. from C/L Butler & Telegraph Ro
"	S. F.	224	O'Connell	533′ S. & 23′ W. from C/L Telegraph & Central Av
"	S. F.	232	Clarke	410′ N. & 149′ W. from C/L Shoemaker & South lin
"	S. F. Comm.	179F	O'Connell	124′ N. & 342′ W. from C/L Park & Butler Lot 1
"	S. F. Comm.	191E	O'Connell	63′ S. & 156′ E. from C/L Spring & Gardner Sts.
"	Walk	111	Clarke	126′ S. of N. property line (Agee Lease) & 150′ W.
Geo. F. Getty, Inc.	S. F. S.	No. 30	O'Connell	163′ S. & 48′ E. from intersection C/L Telegraph &
Italo Pet. Corp. of America	Archer	No. 1	Clarke	87′ N. & 55′ E. from C/L of intersection of Gardne
Mohawk Oil Co.	Hathaway	No. 4	O'Connell	25′ N. & 40′ E. of S. E. Cor. of Texas Co. Batson
Herbert R. MacMillan	Ratliff	No. 1	Clarke	34′ S. & 25′ W. from N. E. Cor. Lot 86, Dunn, Sm
Raleigh Oil Co.	S. F.	No. 3	Clarke	48′ N. & 151.75′ E. from intersection of C/L Curtis
Shell Oil Co.	G. H. & N.	No. 24	O'Connell	141.78′ S. & 200′ W. from N. E. Cor. Lot 7 (whic Puente Mills Road—Sec. 31, T. 2 S., R. 11
"	Slusher	No. B-1	O'Connell	1304′ N. & N. 214.8′ E. from S. E. Cor. of Slusher
"	Slusher	No. 15	Clarke	1619.7′ N. & 423.4′ W. from S. E. Cor. of Slusher L
Standard Oil Co. of Calif.	Hepler	No. 6	Clarke	206.8′ N. & 206.75′ W. from intersection of C/L S
"	Johnson	No. 6	Clarke	151.5′ S. of C/L Little Lake Road & 196′ W. from
"	Jordan	No 7	Clarke	198′ N. from C/L Telegraph Road & 150′ W. from
"	Weisel	No. 13	Clarke	148′ S. from C/L Telegraph Road & 117′ W. from
Sunset Pacific Oil Co.	S. F.	No. 2	Clarke	47′ S. & 237.56′ W. from C/L of Norwalk Road
The Texas Company	Baldwin	No. 3	O'Connell	150′ N. & 170′ W. from S. E. Cor. Baldwin Lease—
Union Oil Co. of Calif.	Alexander	No. 18	O'Connell	480′ N. & 1065′ E. from C/L Telegraph & Norwalk
"	Bell	No. 42	O'Connell	225′ S. from N. line Sec. 6 & 1020′ W. from C/L B
"	Bell	No. 46	O'Connell	415′ N. of south line, Sec. 31 & 320′ W. from C/L
"	Farwell	No. 12	O'Connell	100′ N. & 548′ E. from C/L Telegraph & Central—
Universal Consolidated Oil Co.	Blanchard	No. 11	Clarke	121.5′ N. & 29.6′ E. from N. E. Cor. Spring & Cu
"	O'Connell	No. 4	Clarke	33.4′ E. & 119.2′ N. from S. W. Cor. O'Connell L

EXHIBIT "B"

SANTA FE SPRINGS.

Location and Description in Santa Fe Springs Oil Field	Gas-Oil Ratio MCF Gas to each Bbl. of Oil		Gas Blown to air in MCF/Day
n C/L of intersection of A. T. S. F. Ry. & Little Lake Road—Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	(Est.)		716
n Property line & 210′ W. of C/L Puente Mills Road—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.			2549
rom C/L Telegraph & Central—Sec. 5, T. 3 S. R. 11 W., S. B. B. & M.		4002	10907
m C/L Butler & Telegraph Road—Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.		7403	4852
om C/L Murray Ave. & Clark St. (produced)—Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.			6241
om C/L Butler & Telegraph Road—Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.			703
rom C/L Butler & Telegraph Roads—Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.			167
m C/L Telegraph & Central Ave. (prod. southerly)—Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.		2739	2655
rom C/L Shoemaker & South line Blk. A.—Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.			1003
from C/L Park & Butler Lot 17, Blk. 79—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.		4657	7105
m C/L Spring & Gardner Sts.		4183	5047
y line (Agee Lease) & 150′ W. of C/L Norwalk Road—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.			2133
m intersection C/L Telegraph & Butler Roads—Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.		5250	3048
m C/L of intersection of Gardner & Norwalk Puente Mills Road—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.			1979
S. E. Cor. of Texas Co. Batson Lease—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	(Oct.)	3822	3325
m N. E. Cor. Lot 86, Dunn, Smith & Cornwall Sub.—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.			3588
from intersection of C/L Curtis & Verne—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.			3738
. from N. E. Cor. Lot 7 (which point is the S. W. Cor. of intersection of Smith Ave. & Norwalk-s Road—Sec. 31, T. 2 S., R. 11 W., S. B. B. & M.			188
E. from S. E. Cor. of Slusher Lease—Sec 6, T. 3 S., R. 11 W., S. B. B. & M.			168
W. from S. E. Cor. of Slusher Lease—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.			314
W. from intersection of C/L Smith Ave. & Norwalk Road—Sec. 31, T. 2 S., R. 11 W., S. B. B. & M.			752
tle Lake Road & 196′ W. from East line of Johnson Lease—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.			976
elegraph Road & 150′ W. from C/L S. P. Ry.—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.			847
elegraph Road & 117′ W. from East line Weisel property—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.			754
from C/L of Norwalk Road & Clarke Ave.—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.			2100
rom S. E. Cor. Baldwin Lease—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.			3284
rom C/L Telegraph & Norwalk Road—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.		5840	5878
Sec. 6 & 1020′ W. from C/L Butler Road—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.		3650	7879
Sec. 31 & 320′ W. from C/L Butler Road—Sec. 31, T. 2 S., R. 11 W., S. B. B. & M			3012
om C/L Telegraph & Central—Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.			626
from N. E. Cor. Spring & Curtis—Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.			4905
from S. W. Cor. O'Connell Lease—Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.			2413

As of Sept. 12, 1929.

EXHIBIT "C."

Supplement to "A-A" of Original Complaint, Showing Leases Na

Defendant Company	Lease Name	Well No.	Zone	Location and Descriptio
Bandini Petroleum Company	Off	No. 7	Buckbee	535' S. C/L Fulton Ave. & 440' W. from C/L St
"	"	No. 8	O'Connell	410' S. & 1045' W. from C/L intersection of Sho
"	"	No. 9	Buckbee	642' S. & 1045' W. from C/L intersection of Fult
"	"	No. 10	O'Connell	635' S. & 710' W. from C/L intersection of Shoe
"	"	No. 13	O'Connell	638' S. & 205' W. from intersection of Shoemaker
"	"	No. 15	Buckbee	290' S. & 530' W. from C/L intersection of Tele
"	"	No. 16	O'Connell	90' S. & 530' W. from C/L intersection of Telegr
"	"	No. 17	O'Connell	290' S. & 60' W. from C/L intersection of Telegr
Geo. F. Getty, Inc.	S. F.	No. 8	O'Connell	30' N. & 20' W. from S. E. Cor. Lot 18, Blk. 90,
"	"	No. 10	Buckbee	27' 6" N. & 28' E. from S. W. Cor. Lot 12, Dunn
"	"	No. 13	Nordstrom	155' S. & 200' E. from Cor. Butler & Telegraph
"	"	No. 19	O'Connell	27' S. & 18' W. from N. E. Cor. of Lot 13, Blk.
"	"	No. 20A	O'Connell	34' N. & 22' E. from S. W. Cor. Lot 25, Blk. 45,
"	"	No. 23	Buckbee	17' S. & 34' W. from N. E. Cor. Lot 10, Dunn,
"	"	No. 24	O'Connell	40' S. & 18' E. from N. W. Cor. Lot 17, Dunn,
"	"	No. 25	O'Connell	72' S. & 180' E. from C/L Fulton Rd. & Butler,
"	"	No. 28	O'Connell	206' N. & 67' W. from inter C/L Butler Rd. &
"	"	No. 30	O'Connell	163' S. & 48' E. from inter C/L Telegraph & B
"	"	No. 31	O'Connell	72' S. & 121' E. from C/L inter Telegraph & Bu
"	"	No. 32	O'Connell	97.5' S. & 45' E. from C/L of Telegraph Rd. &
"	"	No. 34	O'Connell	141' S. & 296' E. from C/L intersection of Teleg
Shell Oil Company	G. H. & N.	No. 13	O'Connell	1115.10' N. & 150.0' W. from intersection of C S. B. B. & M.
"	"	No. 14	O'Connell	775' S. & 150' E. from inter C/L Geary & Smith
"	"	No. 15	Buckbee	207.5' N. & 120' W. from S. E. Cor. Lot 5, Tract
"	"	No. 16	O'Connell	419.5' S. & 120' W. from N. E. Cor. Lot 7, Tra
"	"	No. 17	O'Connell	127.7' S. & 282.3' W. from N. E. Cor. Lot 7, Tr
"	"	No. 18	O'Connell	431.3' S. & 585.2' W. from N. E. Cor. Lot 7, Tr
"	"	No. 19	O'Connell	104.4' S. & 348.2' W. from S. E. Cor. Lot 11, T
"	"	No. 20	O'Connell	125.24' S. & 29.91' W. from N. E. Cor. Lot 10,
"	"	No. 24	O'Connell	741.78' S. & 200' W. from N. E. Cor. of Lot 7 Mills Rd., Sec. 31, T. 2 S., R. 11 W..
"	Slusher	No. 15	Clarke	1619. 7' N. & 423.4' W. from S. E. Cor. Slusher
"	"	B-1	O'Connell	1304.1' N. & 214.8' E. from S. E. Cor. Slusher
"	"	B-2	Clarke	35.28' S. & 854.14' W. from N. E. Cor. of Slush
Standard Oil Company of California	Hepler	No. 6	Clarke	206.8' N. & 206.75' W. from inter C/L Smith A
"	"	No. 7	Clarke	150' N. C/L Smith Ave. & 50' W. from C/L Ge
"	Johnson	No. 6	Clarke	151.5' S. of C/L Little Lake Rd. & 196' W. from S. B. B. & M.
"	Jordan	No. 7	Clarke	198' N. from C/L Telegraph Rd. & 150' W. fro
"	"	No. 8	Clarke	100' N. E. at Rt. Ls. to C/L Telegraph Rd. & 28
"	Santa Gertrudes	No. 12	Clarke	150' S. at 90° to C/L Smith Ave. & 100' N. W.
"	South Whittier Com.	No. 19	Buckbee	150' N. of S. Line Lot 21 & 225' E. from C/L S

EXHIBIT "C."

Original Complaint, Showing Leases Named Therein in More Detail.

Location and Description in the Santa Fe Springs Oil Field	Gas-Oil Ratio MCF Gas to each Bbl. of Oil	Gas Blown to Air in MCF/Day
C/L Fulton Ave. & 440' W. from C/L Shoemaker Ave., Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	3094	2610 Est
& 1045' W. from C/L intersection of Shoemaker & Fulton Ave., Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	3094	2610 Est
& 1045' W. from C/L intersection of Fulton Ave. & Shoemaker Road, Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	3094	2610 Est
& 710' W. from C/L intersection of Shoemaker Ave. & Fulton Rd., Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	3094	2610 Est
& 205' W. from intersection of Shoemaker & Telegraph Rd., Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	3094	2610 Est
& 530' W. from C/L intersection of Telegraph & Shoemaker Roads, Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	3094	2610 Est
530' W. from C/L intersection of Telegraph & Shoemaker Roads, Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	3094	2610 Est
& 60' W. from C/L intersection of Telegraph & Shoemaker Roads, Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	3094	2610 Est
20' W. from S. E. Cor. Lot 18, Blk. 90, Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	4000	3340
. & 28' E. from S. W. Cor. Lot 12, Dunn, Smith & Cornwall Sub., Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	500	19
& 200' E. from Cor. Butler & Telegraph Rds., Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	2750	2200
18' W. from N. E. Cor. of Lot 13, Blk. 88, Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	3500	450
22' E. from S. W. Cor. Lot 25, Blk. 45, Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	13000	12364
34' W. from N. E. Cor. Lot 10, Dunn, Smith & Cornwall Sub., Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	2750	1445
18' E. from N. W. Cor. Lot 17, Dunn, Smith & Cornwall Sub., Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	2000	2900
180' E. from C/L Fulton Rd. & Butler, Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	2750	4040
& 67' W. from inter C/L Butler Rd. & Curtis Ave., Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	3750	1880
48' E. from inter C/L Telegraph & Butler Rds., Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	5250	4790
121' E. from C/L inter Telegraph & Butler Roads, Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	18000	17385
& 45' E. from C/L of Telegraph Rd. & Butler Rd., Sec. 5, T. 3 S., R. 11 W., S. B B. & M.	1000	2215
296' E. from C/L intersection of Telegraph & Butler Rds., Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	3500	7475
N. & 150.0' W. from intersection of C/L Anaheim & Telegraph Rd. & Geary St., Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	1062	95
150' E. from inter C/L Geary & Smith Sts., Sec. 31, T. 2 S., R. 11 W., S. B. B. & M.	1725	465
& 120' W. from S. E. Cor. Lot 5, Tract 1664, Sec. 31, T. 2 S., R. 11 W., S. B B. & M.	115	59
& 120' W. from N. E. Cor. Lot 7, Tract 1664, Sec. 31, T. 2 S., R. 11 W., S. B. B. & M.	2121	31
& 282.3' W. from N. E. Cor. Lot 7, Tract 1664, Sec. 31, T. 2 S., R. 11 W., S. B. B. & M.	549	18
& 585.2' W. from N. E. Cor. Lot 7, Tract 1664, Sec. 31, T. 2 S., R. 11 W., S. B. B. & M.	1929	74
& 348.2' W. from S. E. Cor. Lot 11, Tract 1664, Sec. 31, T. 2 S., R. 11 W., S. B. B. & M.		
. & 29.91' W. from N. E. Cor. Lot 10, G. H. N. Lease, Sec. 31, T. 2 S., R. 11 W., S. B. B. & M.		
. & 200' W. from N. E. Cor. of Lot 7 which point is S. W. Cor. inter of Smith Ave. & Norwalk & Puente Mills Rd., Sec. 31, T. 2 S., R. 11 W., S. B. B. & M.	1427	215
N. & 423.4' W. from S. E. Cor. Slusher Lease, Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	1059	720
. & 214.8' E. from S. E. Cor. Slusher Lease, Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	1414	1660
& 854.14' W. from N. E. Cor. of Slusher Lease, Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	1498	3870
& 206.75' W. from inter C/L Smith Ave. & Norwalk Rd., Sec. 31, T. 2 S., R. 11 W., S. B. B. & M.	657	750
C/L Smith Ave. & 50' W. from C/L Geary St. produced northerly, Sec. 31, T. 2 S., R. 11 W., S. B. B. & M.	1408	1615
of C/L Little Lake Rd. & 196' W. from E. line of S. O. Co. Johnson Lease, Sec. 6, T. 3 S., R. 11 W S. B. B. & M.	1118	1065
rom C/L Telegraph Rd. & 150' W. from C/L S. P. R. R., Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	680	845
at Rt. Ls. to C/L Telegraph Rd. & 285' N. W. at Rt. Ls. to C/L Waters Ave.	1229	1070
90° to C/L Smith Ave. & 100' N. W. at 90° to C/L S. P. R. R., Sec. 31, T. 2 S., R. 11 W., S. B. B. & M.	1260	1495
S. Line Lot 21 & 225' E. from C/L Shoemaker Ave. in Lot 21, Bell & Carlton's Santa Gertrudes Acres, Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	1320	133
184' E. from S. W. Cor. of E. half of Blk. 22, Dunsmore's Add., Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.		

"	[illegible]	No. 12	Clarke	150' S. at 90° to C/L Smith Ave. & 100' N. W. at 9
"	South Whittier Com.	No. 19	Buckbee	150' N. of S. Line Lot 21 & 225' E. from C/L Sho
				Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.
"	"	No. 26	O'Connell	98' N. & 184' E. from S. W. Cor. of E. half of Bl
"	Walker Community	No. 11	O'Connell	150' S. & 150' W. from inter. of C/L of Clark Ave
"	"	No. 14	O'Connell	130' N. & 65' E. from inter. of C/L of Curtis & Wa
Second Twin Bell Synd.		No. 5	Nordstrom	28' N. & 23' W. from S. E. Cor. of Lot 2, Blk. 85
"		No. 6	O'Connell	28.5' S. & 240' W. from S. W. Cor. Telegraph & Fo
Universal Consolidated Oil Co.	Blanchard			
"	"	No. 7	O'Connell	189' S. & 36.6' E. from N. W. Prop. Cor. Spring
"	"	No. 8	O'Connell	249' S. & 120' E. from C/L of Clarke Ave. & Verne
"	"	No. 9	O'Connell	101' N. & 87' W. from inter. C/L Verne & Curtis A
"	"	No. 10	O'Connell	15.6' S. & 27.5' W. from S. W. Cor. of Clark & Ve
"	"	No. 11	Clarke	121.5' N. & 29.6' E. from N. E. Cor. Spring & Curt
"	O'Connell	No. 2	O'Connell	155' N. & 640' E. from inter. of C/L Little Lake &
"	"	No. 3	Clarke	41' S. & 313.2' E. from N. Prop. line & C/L Butler
"	"	No. 4	Clarke	33.4' E. & 119.2' N. from S. W. Cor. O'Connell Lea
"	"	No. 5	Clarke	33.4' N. & 334.6' from N. E. Cor. Little Lake & E
Bell View Oil Synd.	Grohs	No. 2	Buckbee	95' N. & 30' E. from S. W. corner Lot 5, Blk. 82
"	Santa Fe	No. 3	O'Connell	14' N. & 11' W. from S. E. corner Lot 5, Blk 82,

S. at 90° to C/L Smith Ave. & 100′ N. W. at 90° to C/L S. P. R. R., Sec. 31, T. 2 S., R. 11 W., S. B. B. & M.	1260	1495
N. of S. Line Lot 21 & 225′ E. from C/L Shoemaker Ave. in Lot 21, Bell & Carlton's Santa Gertrudes Acres, Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	1320	133
N. & 184′ E. from S. W. Cor. of E. half of Blk. 22, Bannister's Add., Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	1846	340
S. & 150′ W. from inter. of C/L of Clark Ave. & Ward St., Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	2750	1680
N. & 65′ E. from inter. of C/L of Curtis & Ward Sts., Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	1140	180
N. & 23′ W. from S. E. Cor. of Lot 2, Blk. 85, Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	5283	5830
S. & 240′ W. from S. W. Cor. Telegraph & Forest, Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	5283	5830
S. & 36.6′ E. from N. W. Prop. Cor. Spring St. & Clark Ave., Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	2630	1056
S. & 120′ E. from C/L of Clarke Ave. & Verne St., Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	2310	565
N. & 87′ W. from inter. C/L Verne & Curtis Ave., Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	2780	395
S. & 27.5′ W. from S. W. Cor. of Clark & Verne Sts., Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	1580	790
5′ N. & 29.6′ E. from N. E. Cor. Spring & Curtis, Sec. 6, T. 3 S., R. 11 W., S. B. B. & M.	1400	4945
N. & 640′ E. from inter. of C/L Little Lake & Butler Rds., Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	1380	525
S. & 313.2′ E. from N. Prop. line & C/L Butler Rd., Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	1410	2110
E. & 119.2′ N. from S. W. Cor. O'Connell Lease, Sec. 5, T. 3 S., R. 11 W. S. B. B. & M.	1580	2410
N. & 334.6′ from N. E. Cor. Little Lake & Butler, Sec. 5, T. 3 S., R. 11 W., S. B. B. & M.	980	340
N. & 30′ E. from S. W. corner Lot 5, Blk. 82, Sec. 6, T. 3 S., R. 11 W.	3090	4900
N. & 11′ W. from S. E. corner Lot 5, Blk 82, Sec. 6, T. 3 S., R. 11 W.	2300	4000

[fol. 270] EXHIBIT 16 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

Amendment to Demurrer of Defendants Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, Inc., and Wilshire Annex Oil Company

Come now the defendants Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, Inc., and Wilshire Annex Oil Company, and by way of amendment to the demurrer of the complaint on file herein, as amended by the amendments thereto on file, reallege and incorporate by reference paragraphs 1 to 17, both inclusive, of said demurrer as their demurrer and the demurrer of each of them to said complaint as amended, and add the following paragraphs to said demurrer relating particularly to the matters alleged in said amendments:

18. Said complaint as amended is uncertain in each and all of the following particulars:

[fol. 271] (a) It cannot be ascertained from paragraph 12-a how, or in what manner, or in what particular, or by what means, or by reason of what fact or facts, or to what extent, any of these demurring defendants was, at the time of the filing of the complaint or at any time since has been or is now, unreasonably wasting natural gas from any of the wells referred to and/or described in Exhibit B annexed to said complaint as amended.

(b) It cannot be ascertained from paragraph 12-a how, or in what manner, or in what particular, or by what means,

or by reason of what fact or facts, or to what extent, any of these demurring defendants was, at the time of the filing of the complaint or at any time since has been or is now, unreasonably wasting natural gas from any of the wells referred to and/or described in Exhibit C annexed to said complaint as amended.

(c) It cannot be ascertained from Exhibit B what is the gas-oil ratio of each and all of the wells listed in said Exhibit B opposite which the amount of the gas-oil ratio is left blank.

(d) It cannot be ascertained from Exhibit C what is the gas-oil ratio of each and all of the wells listed in said Exhibit C opposite which the amount of the gas-oil ratio is left blank.

[fol. 272] (e) It cannot be ascertained therefrom whether the wells listed on Exhibit AA, B and/or C constitute all of the wells in said Santa Fe Springs oil field from which it is alleged gas was or is being unreasonably wasted or from which gas is being produced which is unreasonably wasted, and if not, what is the description, location, name of operator, gas-oil ratio and/or the amount of gas blown into the air each day from each and every such well.

(f) It cannot be ascertained therefrom whether there are any other operators or operator within said field who are unreasonably wasting natural gas not named or listed in said complaint or the amendments thereto or any exhibit or exhibits thereto, and if so, what is the name of such operator, or whether each and all of the facts alleged as to other defendants are true as to each and every or any of said omitted operators.

(g) It cannot be ascertained therefrom how, or to what extent, or in what particular, or by reason of what facts the release or blowing into the air of more than 10% of the natural gas produced from each well in said Santa Fe Springs oil field constitutes unreasonable waste of natural gas in the zone from which such well is producing, or what is meant by the term "unreasonable waste of natural gas" or the term "waste of natural gas" as the same is used in [fol. 273] said complaint, or in any amendment thereto, or how much of the gas so produced can be utilized, or how it

can be utilized, or what the facts are in relation thereto, so that the court can determine whether it does or does not constitute unreasonable waste.

(h) It cannot be ascertained therefrom whether the various parcels of land are owned by existing defendants in this action, or whether any of said parcels of land is owned by a person or parties not a defendant or defendants in this action, or the name or names of such person or parties, or whether or not or to what extent or by what means, or in what manner, they or any of them are wasting or unreasonably wasting natural gas, or whether they or any of them are operating any well in said Santa Fe Springs oil field producing oil and/or gas.

(i) It cannot be ascertained therefrom whether there are any owners and/or operators in said Santa Fe Springs oil field owning and/or operating any well in said field who are unreasonably wasting natural gas produced therefrom, or whether natural gas produced therefrom is being unreasonably wasted.

(j) It cannot be ascertained therefrom whether this action is brought on behalf of any operators and/or owners [fol. 274] of wells producing oil and/or gas in said Santa Fe Springs oil field, and if so from which zone or zones, or whether or not they or any of them are engaged in like or similar practices complained of.

19. Said complaint is ambiguous on each and every of the grounds hereinabove alleged as grounds for uncertainty.

20. Said complaint is unintelligible on each and every of the grounds hereinabove alleged as grounds for uncertainty.

Call & Murphey, by Robert B. Murphey and William L. Murphey, Attorneys for Demurring Defendants Above Named.

[fol. 275] EXHIBIT 17 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiff,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

Amendment to Answer of Defendants Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, Inc., and Wilshire Annex Oil Company and Answer to Amendments to Complaint.

Come now the defendants Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, Inc., and Wilshire Annex Oil Company, and each severing itself from its codefendants and from one another, each for itself (without waiving the demurrer or motion to strike or the amendments thereto heretofore served and/or filed), and amending their answer to the plaintiffs' complaint filed herein, and also answering the amendments to said complaint, admit, deny and allege as follows:

I

Answering defendants, each for itself, hereby refer to and incorporate by reference herein all of the allegations, [fol. 276] admissions and denials contained in their answer to the plaintiffs' complaint, heretofore filed in the above entitled cause, except as follows:

(a) Omit that portion of paragraph 8 thereof, commencing with the word "except", on line 20, page 5, and ending with the word "well", on line 22, page 5, reading as follows: "except where gas is being produced from such oil well in quantities exceeding a reasonable proportion to the amount of oil produced from such well".

(b) Add to paragraph 8 thereof, after the word "industry" on page 5-a, line 28, the following: "In cases where the gas-oil ratio of an oil and gas well in Santa Fe Springs oil field can be controlled or regulated by regulation and adjustment of the flow bean, no material change in the gas-oil ratio and no substantial decrease in the gas production from such well and no substantial increase in the ultimate oil production from such well are thereby accomplished ordinarily from said field. The gas-oil ratio of any flowing well is generally absolutely controlled by natural conditions and cannot be changed or altered."

(c) Omit that portion of paragraph 27 thereof, commencing with the word "or", on line 20, page 18, and end-
[fol. 277] ing with the word "well", on line 21, page 18, reading as follows: "or within an area of four or five acres surrounding such well" and insert in lieu thereof the words "or within a varying radius of from 50 to 100 feet from said well".

(d) Omit the words "in a constantly increasing proportion" from paragraph 31 as the same appears on page 22, line 10, and substitute in lieu thereof the words "in a constantly decreasing proportion".

(e) In paragraph 31, page 22, line 21, change the words "are forbidden and prohibited" to read "will be forbidden and prohibited".

II

Allege that the term "unreasonable waste of natural gas" was not, prior to May 28, 1929, known to the industry producing oil and gas in California or elsewhere, and never had and does not now have any established or commonly understood or ascertainable meaning by usage or custom, or otherwise.

[fol. 278]

III

Allege that the Santa Fe Springs oil field, as in said complaint referred to, is a portion of the Rancho Santa Gertrudes, in the County of Los Angeles, State of California, and that the same is in Oil and Gas District No. 1, in the State of California. Allege that said Rancho Santa Gertrudes was a Mexican grant, granted by the Government of Mexico to the predecessors in interest of these answering

defendants, and who then occupied said rancho; that the said grant was confirmed by the United States Government subsequent to the acquisition of the State of California by secession from the Republic of Mexico. Deny that said lands, or any part thereof, ever constituted any part of the public domain of the United States. Allege that all of the said lands, including all minerals of every character and kind, passed to the grantees of said lands under said grant from the Government of the Republic of Mexico and were subsequently confirmed to the said grantees and their successors in interest by the Government of the United States of America. Allege that none of the minerals found in said lands, nor any of the oil, gas or other hydro-carbon substances therein present or found therein was ever the property of or belong to the Government of the United States, or of the State of California. Allege that neither the Am-
[fol. 279] bassador Petroleum Company, Bandini Petroleum Company, Wilshire Oil Comapny, Inc., Wilshire Annex Oil Company nor Commodore Petroleum Company (except as the said Commodore Petroleum Company admitted in this Answer) has at any time sold any gas produced from any of their said respective properties or elsewhere in the Santa Fe Springs Oil Field to any public utility gas company or companies or any other company or companies, and that none of said gas so produced by any of these answering defendants (except by Commodore Petroleum Company, in so far as admitted by this Answer) in the Santa Fe Springs Oil Field has been distributed by said gas companies or re-sold to the People of the State of California, or any of its inhabitants or industries.

IV

Answering paragraph 12-a of said complaint as amended, deny that any gas was, at the time of the filing of the complaint herein, or at any time since has been or is now, being unreasonably or otherwise wasted from Well No. 12 on the Baker lease, referred to and described in Exhibit B to the amendments to complaint for injunction on file herein, or that any gas was, at any of said times or is now, escaping or being blown into the air from said well. Deny that gas was, at the time of the filing of the complaint herein or at any time since has been or is now, being un-

[fol. 280] reasonably or at all wasted by any of these answering defendants from any of the wells referred to and/or described in said Exhibit B or in Exhibit AA attached to the complaint herein, or that any of these answering defendants was, at the time of the filing of the complaint herein or at any time since has been or is now, unreasonably or otherwise wasting any natural gas. None of these answering defendants has any information or belief upon the subject sufficient to enable them or any of them to answer the allegations next denied, and basing their denial upon that ground deny that said Exhibit B or Exhibit AA to the complaint is complete or correct with respect to all or any of the wells listed thereon as being operated by or owned by any of the other defendants to this action. Deny that Exhibit B shows, opposite each of the wells listed thereon, the production gas-oil ratio thereof, but allege that the gas-oil ratio of many of said wells is omitted from said Exhibit B, reference to which is hereby made for further particulars.

V

Deny that any gas was, at the time of the filing of the complaint herein or at any time since has been or is now, being unreasonably or otherwise wasted from any of the wells listed on Exhibit C to said "Amendments to Com-[fol. 281] plaint for Injunction" as being operated or owned by the defendant Bandini Petroleum Company, or otherwise or at all. Deny that the gas-oil ratio of gas to each bbl. of oil set forth on said Exhibit B as to each or any of the wells listed opposite the name of Bandini Petroleum Company was 3,094 M.C.F. of gas to each bbl. of oil, or that the gas-oil ratio on the wells listed on Exhibit C belonging to or operated by said Bandini Petroleum Company was, on September 12, 1929, in excess of the amount set opposite each of said wells:

Well No.	Cu ft. of gas per bbl. of oil
9	1,407
10	2,935
13	2,282
17	Not on production

Allege that none of these answering defendants has any information or belief upon said subject sufficient to enable

them or any of them to answer the allegations next denied, and placing their denial upon that ground deny that Exhibit C is complete or correct, and deny each and every statement appearing thereon. Allege that Exhibit C does not show the production gas-oil ratio of some of the wells listed thereon, and reference to Exhibit C is hereby made for further particulars.

[fol. 282] VI

Deny that the quantity of natural gas which may be blown or released into the air from any well in said Santa Fe Springs oil field, either before or after removing the gasoline from said natural gas, without constituting unreasonable waste, or waste, of the natural gas in said zone of said oil field from which the said natural gas is derived, will not, in the case of any well, exceed 10% of the natural gas as the same is produced from each such well with the oil brought to and out of each such well with the said gas, or that any gas produced from any of the wells of any of these answering defendants and which is blown or released into the air, either before or after removing the gasoline therefrom, was, at the time of the filing of the complaint, or at any time since has been, unreasonably or otherwise wasted or is now being unreasonably or otherwise wasted. Deny that the blowing or releasing into the air of more than 10% of the natural gas produced from any well in said Santa Fe Springs oil field, either before or after removing the gasoline from said natural gas, constitutes unreasonable waste, or waste, of such natural gas. None of these answering defendants has any information or belief upon the subject sufficient to enable them or any of them to answer the allegation next denied, and placing their denial upon that ground deny that Exhibit A attached [fol. 283] to the complaint shows all or any of the surface boundaries of all or any of the parcels of land in separate ownership in said Santa Fe Springs oil field, or the location of all or any of the oil and gas wells therein at the time of the filing of said complaint.

VII

The granting of all or any part of the relief prayed for in the complaint herein will operate so as to be arbitrary,

oppressive and discriminatory against each of these answering defendants and other operators in said Santa Fe Springs oil field. There are many oil fields in California, particularly in Southern California, producing oil and gas under conditions similar to and like those existing in Santa Fe Springs oil field, the products of which and the business of the operators in which fields come into direct competition with the products of Santa Fe Springs oil field and the products produced by each of these answering defendants from said Santa Fe Springs oil field. The defendant Wilshire Oil Company, Inc., has purchased or contracted to purchase the crude oil produced from the other of these answering defendants as well as the gasoline content of the gas produced by said defendants, and owns and operates a refinery in which the crude oil produced by it and the other of these answering defendants from said Santa Fe Springs [fol. 284] oil field is manufactured into gasoline and other products. Almost all of the oil and gasoline handled by the defendant Wilshire Oil Company, Inc., is thus acquired and produced from said Santa Fe Springs oil field and is sold and distributed to the wholesale and retail trade throughout the state of California and in the western part of the United States, in competition with like products of others engaged in the business of selling and distributing gasoline and oil who acquire the same largely from other oil fields within the state of California and particularly Southern California. No effort has been made by the state of California or any of its officials to enforce the statute under which this suit was brought in many of said oil fields in which similar and like conditions complained of in Santa Fe Springs oil field do now exist and for some time have existed. No other suit under section 14b of said statute has been instituted except as to the Signal Hill oil field, in vicinity of Long Beach, California, and Kettleman Hills, in the central part of California, and in neither of said suits has there been any injunction ordered or any hearing upon any injunction. No proceeding has been brought under section 8d of said statute except as to the Ventura Avenue oil field. The order which was made by the Board of Commissioners of District No. 2 in which said Ventura Avenue oil field is situated under the said proceedings [fol. 285] initiated under section 8d of said statute relating to said field permits the operators producing oil and

gas therefrom to operate under a more favorable basis than is sought in this suit for operators in Santa Fe Springs oil field, and in particular contains no provision regulating or purporting to regulate the amount of gas produced with each barrel of oil from said field, notwithstanding that the amount of gas produced with each barrel of oil from almost all of the wells in said field is many times in excess of the amount of gas produced with each barrel of oil produced in Santa Fe Springs oil field. The said order of said Board merely prohibits operators and producers in said field from continuing the unreasonable waste of natural gas produced from said field, without prohibiting any specific act or acts or defining what constitutes such unreasonable waste of natural gas found to exist in said field. In the suit which has been commenced relating to Kettleman Hills oil and gas field, above referred to, no effort is made to establish a gas-oil ratio. By reason of the premises aforesaid, if the relief prayed for in this action is granted in whole or in part, it will operate so as to permit the competitors of defendants, and particularly the major oil companies selling and distributing oil and gasoline throughout the state who procure the same largely from other oil and gas fields, to operate under more favorable terms and conditions than can each of these answering defendants. The volume of sales of gasoline throughout the state of California of the defendant Wil- [fol. 286] shire Oil Company, Inc., was sixth in rank amongst companies selling and distributing gasoline throughout the state of California for the three months ending December 31, 1929. Its said business and the business of the other of these answering defendants will be seriously and irreparably damaged and injured, and each of them will be unjustly, arbitrarily and oppressively discriminated against if its and their available supply of oil and gasoline from said Santa Fe Springs oil field as aforesaid, is curtailed or impaired by any judgment or decree made in this action.

Wherefore, each of these answering defendants prays:

1. That the plaintiffs take nothing by this action.

2. That the lessor or lessors and their respective successors in interest under each of the leases hereinabove set forth be declared to be necessary and indispensable parties

to this suit and that the plaintiffs be required forthwith to make them parties to this suit and to have summons served upon each of them, respectively, and that no further proceedings be taken in this action affecting operations by any of these answering defendants thereon until this has been done and this court has acquired jurisdiction of them, respectively.

3. That each of these answering defendants have judgment against plaintiffs for their respective costs of suit incurred herein; and

[fol. 287] 4. For such further relief as to the court shall seem just and equitable.

Call & Murphey, by Robert B. Murphey and William L. Murphey, Attorneys for Defendants Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, Inc., and Wilshire Annex Oil Company.

STATE OF CALIFORNIA,
County of Los Angeles, ss:

Alfred P. Machris, being by me first duly sworn, deposes and says: That he is Secretary of the Wilshire Oil Company, Inc., one of the answering defendants in the above entitled action; that he has read the foregoing Amendment to Answer, etc., and knows the contents thereof; and that the same is true of his own knowledge, except as to the matters which are therein stated upon his information or belief, and as to those matters that he believes it to be true.

Affiant makes this verification for and on behalf of said corporation as such officer.

Alfred P. Machris.

Subscribed and sworn to before me this 11th day of March, 1930. ——, Notary Public in and for the County of Los Angeles, State of California. (Notarial Seal.)

[fol. 288] EXHIBIT 18 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiffs,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

Preliminary Injunction

The above named plaintiffs, People of the State of California, by Fred G. Stevenot, Director of Natural Resources of the State of California, having on September 11, 1929, filed their verified complaint in the Superior Court of the State of California, in and for the County of Los Angeles, against the defendants in the said complaint named, among other relief praying for an order to show cause why a preliminary injunction should not issue, and a preliminary injunction be issued against the said defendants and each of them, their respective attorneys, agents, servants and employees, and all persons acting in aid or in conjunction with said defendants, or any of them, requiring them to refrain from certain acts set forth in said complaint; and this court having issued its Order to Show Cause, requiring said defendants, and each of them, to be and appear before this court and then and there to show cause why a [fol. 289] preliminary injunction should not be granted as prayed for in said complaint, and as set forth in said Order to Show Cause; and the matter coming on regularly for hearing in said Superior Court, the Honorable William Hazlett presiding; and

Plaintiffs, People of the State of California, on relation of Fred G. Stevenot, Director of Natural Resources of the State of California, appearing by James S. Bennett, their attorney; and

Defendant Associated Oil Company, appearing by William F. Humphrey, Robert M. Searls, Daniel Howe & Harrison Guio, its attorneys;

Defendant General Petroleum Corporation, appearing by A. L. Weil, its attorney;

Defendant Richfield Oil Company of California, appearing by Bradford W. Melvin and Wm. J. DeMartini, its attorneys;

Defendant Standard Oil Company of California, appearing by Pillsbury, Madison & Sutro, and Lawler & Degnan, its attorneys;

Defendant The Texas Company, appearing by Charles C. Stanley, J. A. Tucker, J. A. McNair and R. K. Barrows, its attorneys;

Defendant Shell Oil Company, appearing by McCutchen, Olney, Mannon and Greene and by O'Melveny, Tuller & Myers, its attorneys;

[fol. 290] Defendant Union Oil Company of California, appearing by Paul M. Gregg and Jerry H. Powell, its attorneys;

Defendant Industrial Fuel Supply Company having been served with the Summons, Complaint, Order to Show Cause and Affidavits on or before six o'clock P. M. of September 16, 1929, and having failed to appear herein within the time allowed by law and its default having been entered;

Defendant Rio Grande Gasoline Company having been served with the Summons, Complaint, Order to Show Cause and Affidavits on or before six o'clock P. M. of September 16, 1929, and having failed to appear herein within the time allowed by law and its default having been entered;

Defendant Standard Gasoline Company, appearing by Pillsbury, Madison & Sutro, Lawler & Degnan, its attorneys;

Defendant The Norwalk Company, appearing by A. L. Weil, its attorney;

Defendant Ambassador Petroleum Company, appearing by Call & Murphey and William L. Murphey, its attorneys;

Defendant Bandini Petroleum Company, appearing by Call & Murphey, and William L. Murphey, its attorneys;

[fol. 291] Defendant Bell View Oil Syn., appearing by Walter F. Haas, its attorney;

Defendant Buckeye Union Oil Company, appearing by Bradner & Weil, its attorneys;

Defendant Commodore Petroleum Company, appearing by Call & Murphey, and William L. Murphey, its attorneys;

Defendant Cooperative Oil Syndicate of Santa Fe Springs, appearing by Lyon, Fleming & Robbins, its attorneys;

Defendant Tom Donley Land & Oil Company having been served with the Summons, Complaint, Order to Show Cause and Affidavits on or before six o'clock P. M. of September 16, 1929, and having failed to appear herein within the time allowed by law and its default having been entered;

Defendant Elliott Consolidated Oil Company, appearing by Guy B. Graham, its attorney;

Defendant Oscar R. Howard, appearing by McAdoo, Neblett, O'Connor & Clagett and Edward H. Mitchell, his attorneys;

Defendant Jameson Petroleum Company, appearing by Black, Hammond & Black, its attorneys;

Defendant C. C. Julian, having been served with the Summons, Complaint, Order to Show Cause and affidavits [fol. 292] on or before six o'clock P. M. of September 16, 1929, and having failed to appear herein within the time allowed by law and his default having been entered;

Defendant Raleigh Oil Company, appearing by Clay Carpenter, its attorney;

Defendant Reed & Berliner, Inc., having been served with the Summons, Complaint, Order to Show Cause and Affidavits on or before six o'clock P. M. of September 16, 1929, and having failed to appear herein within the time allowed by law and its default having been entered;

Defendant George W. Ring, appearing by Walker R. Flint, his attorney;

Defendant Rio Grande Oil Company, appearing by Flint & McKay and H. L. Dunnigan, its attorneys;

Defendant Second Twin Bell Syn., appearing by Neil S. McCarthy, Earl L. Bonta and Howard P. Hall, its attorneys;

Defendant The St. Helens Petroleum Co., Ltd., appearing by Andrews & Andrews, its attorneys;

Defendant Star Petroleum Company, appearing by Neil S. McCarthy, Earl L. Bonta and Howard P. Hall, its attorneys;

Defendant Sunset Pacific Oil Company, appearing by Simpson & Simpson, its attorneys;

[fol. 293] Defendant Superior Oil Company, appearing by Chandler, Wright & Ward, its attorneys;

Defendant Syndicate Company, having been served with the Summons, Complaint, Order to Show Cause and Affidavits on or before six o'clock P. M. of September 16, 1929, and having failed to appear herein within the time allowed by law and its default having been entered;

Defendant Twin Bell Oil Syn., appearing by Neil S. McCarthy, Earl L. Bonta and Howard P. Hall, its attorneys;

Defendant United States Oil and Royalties Company, appearing by Lyon, Fleming & Robbins, its attorneys;

Defendant Universal Consolidated Oil Company, appearing by Bradford W. Melvin and Wm. J. DeMartini, its attorneys;

Defendant Whiston & Cox Oil Company, having been served with the Summons, Complaint, Order to Show Cause and Affidavits on or before six o'clock P. M. of September 16, 1929, and having failed to appear herein within the time allowed by law and its default having been entered;

Defendant Whittier Santa Fe Springs Oil Syn. No. 1, having been served with the Summons, Complaint, Order to Show Cause and Affidavits on or before six o'clock P. M. [fol. 294] of September 16, 1929, and having failed to appear herein within the time allowed by law and its default having been entered;

Defendant George F. Getty, Inc., appearing by Rush M. Blodget and George W. Nilsson, its attorneys;

Defendant Wilshire Annex Oil Co., appearing by Call & Murphey, and William L. Murphey, its attorneys;

Defendant Wilshire Oil Co., Inc., appearing by Call & Murphey, and William L. Murphey, its attorneys;

Defendant Mohawk Petroleum Co., having been served with the Summons, Complaint, Order to Show Cause and Affidavits on or before six o'clock P. M. of September 16, 1929, and having failed to appear herein within the time allowed by law and its default having been entered;

Defendant H. A. Bardeen, appearing by Rush M. Blodget, his attorney;

Defendant K. G. Pulliam, Jr., appearing by C. L. Larzelere, his attorney;

Defendant Bardeen Oil Company, sued under the name of John Doe One Company, having been served with the Summons, Complaint, Order to Show Cause and Affidavits on or before six o'clock P. M. of September 16, 1929, and [fol. 295] having failed to appear within the time allowed by law and its default having been entered;

Defendant Italo Petroleum Corporation of America, sued under the name of John Doe Two Company, appearing by Spalding & Myers, its attorneys;

Defendant York & Smullin, sued under the name of John Doe Three Company, having been served with the Summons, Complaint, Order to Show Cause and Affidavits on or before six o'clock P. M. of September 16, 1929, and having failed to appear within the time allowed by law and its default having been entered; and

Defendant A. Wardman, sued under the name of Richard Roe I, having been served with the Summons, Complaint, Order to Show Cause and Affidavits on or before six o'clock P. M. of September 16, 1929, and having failed to appear within the time allowed by law and its default having been entered; and

The matter having been regularly continued and again set for hearing in said Superior Court on March 12, 1930, and the matter coming on regularly for hearing; and

The Court having read the verified complaint and the affidavits in support of the relief prayed for in said complaint, and having read the verified answers of defendants on file herein and the affidavits filed on behalf of certain defendants, and having taken testimony both oral and documentary in open court and having heard the attorney for [fol. 296] plaintiffs and the attorneys for the defendants appearing herein, the Court finds that no sufficient cause has been shown why a preliminary injunction should not be issued as prayed for in said complaint, and as hereinafter provided, and the Court having considered the law and the premises finds that there appears to be an unreasonable waste of natural gas in the Santa Fe Springs Oil Field; that to preserve the subject matter of the action to abide the decree of the Court at the conclusion of the trial a preliminary injunction is necessary at this time; that the evidence available to the Court at this time shows that the unreasonable waste of natural gas in said field may be substantially reduced and that the equities of all parties may

be fairly conserved by a preliminary injunction which will limit the waste of gas by restricting the production thereof to a quantity reasonably in excess of the present outlets for beneficial use above ground, require the extraction of gasoline from the gas produced in the field; that accordingly for the purposes of this order, the total gas outlets for all uses with a reasonable tolerance to take care of fluctuating demands and the necessary waste is taken at approximately two hundred eighty-five million (285,000,000) cubic feet of gas each day, and the estimated potential production oil is taken at two hundred thirty-seven thousand five seventy-six (237,576)
[four]* hundred [twenty-two]* [(237,422)]* [W. H.] barrels each day distributed among leases and other operating property units, as shown in the schedule hereafter set out; [fol. 297] and that sufficient cause has been shown for the extraordinary relief of a preliminary injunction pending the trial of the action on the merits, and the entry of a final judgment herein;

It Is Ordered and Decreed that the above named defendants and each of them and their respective attorneys, agents, servants and employees, and all persons acting in aid of them, or any of them, be and they hereby are restrained and enjoined and each of them is hereby restrained and enjoined from and after 12:00 o'clock noon of the 21st day of March, 1930, until the further order of this Court as follows:

1. From blowing, releasing or permitting any natural gas to escape into the air from any well or wells in the Santa Fe Springs Oil Field before the removal of the gasoline from such natural gas.

2. From operating any well producing natural gas in the Santa Fe Springs Oil Field except while exercising a high degree of care in the selection and adjustment of appliances and in the use thereof for the purpose of keeping each producing well in its "optimum gas-oil ratio"—the term "optimum gas-oil ratio" being defined as the smallest number of cubic feet of gas which can be produced with each barrel of oil from the same well at the same time.

[* Erased in copy.]

3. From producing more net formation gas on the average day of each seven (7) day period from any lease or other property unit than is set forth in the "Allowed Gas Production" column in the schedule following:

[fol. 298] Schedule

Santa Fe Springs Oil Field

Operator and lease	Potential production—estimated potential in bbls. per day	Allotted production—daily average
E. K. Allison Syndicate:		
Lot —, Bl. 87	705	304
Associated Oil Co.:		
Butterworth	64	.....
Clarke	521	.....
Dallugge	267	.....
Dewenter-Green-Jordan	7,491	.....
Tscheppe	31	.....
Total	8,374	.....
Bardeen, H. A.:		
Block 87	1,658	714
[fol. 299] Barnhart-Morrow:		
Julian-Brunson	601	.....
Globe-Brunson	166	.....
Total	767	330
Bellview Oil Synd.:		
Grohs	3,544	1,527
Buckeye Union:		
Irish	479	206
Cypress Petroleum:		
Wardman	587	253
Tom Donley Land & Oil Co.	133	57
Elliott Cons.:		
Clarke	.....	.....
Elmer Oil Co.:		
Jameson	228	98
Ethyl Oil Co.:		
Butterworth	350	151
Page Total	.....	.....

Schedule Page a

[fol. 300]

Schedule

Santa Fe Springs Oil Field

Operator and lease	Estimated potential in bbls. of oil per day	Allowed gas production in M. C. F. daily average	
General Petroleum Corp.:			
Anderson	1,710	2,052	
E. G. B.	650	780	
Hill-Midway	2,703	3,244	
Jalk	548	658	
Santa Fe Comm.	53,816	64,580	
Total	59,427	.....	
Geo. F. Getty, Inc.:			
Baker	477	[572]*	788
Biddle	3,035	[3,642]*	5,012
Hill	1,074	[1,289]*	1,774

[fol. 301]

Mitchell	2,237	[2,684]*	3,695
Nordstrom	4,626	[5,551]*	7,640
O'Connell	827	[992]*	1,366
Parcell	499	[599]*	824
Schaeffer	.....	.....	....
Monte	958	[1,150]*	1,582
Total	13,733	.....	
Howard, Oscar R.:			
Bell	241	289	
Hathaway	719	863	
Total	960	.....	
Italo Petroleum Corp.:			
Archer	832	998	
Brunson	132	158	
Total	814	.....	
Page Total	.....	90,101	

[W. H.]

Schedule Page b

[*Erased in copy.]

[fol. 302] Schedule

Santa Fe Springs Oil Field

Operator and lease	Estimated potential in bbls. of oil per day	Allowed gas production in M. C. F. daily average
Jameson Petroleum Corp.:		
Compton-Wardman-Petitfils	336	403
Kyle, W. S.:		
Off	142	170
Macmillan, H. R.:		
Ratliff	210	252
McKeon Oil Co.:		
Co-Operative	579	695
Reiber	.....	.....
York-Lockhart	1,019	1,223
Total	1,598	.....
Mendota Petroleum:		
Baker	149	179
[fol. 303]		
Mohawk Petroleum:		
Hathaway	940	1,128
Pargellis, W. F.:		
Reiber	152	182
Richfield Oil Co.:		
Clark	330	396
Elliott	615	738
G. P.....	711	853
Howard	1,258	1,510
Industrial	450	540
Petitfils	1,016	1,219
Wardman	696	835
Total	5,076	.....
Ring Oil Co.:		
Ratliff	211	253
Rio Grande Oil Co.:		
Parkford Comm.....	620	744
Page Total.....	.....	11,320

Schedule Page c

[fol. 304] Schedule

Santa Fe Springs Oil Field

Operator and lease	Estimated potential in bbls. of oil per day	Allowed gas production in M. C. F. daily average
Rohde Oil Synd. #1:		
Rohde #1	401	481
Rohde Oil Synd. #3:		
Rohde #3	1,468	1,762
Santa Fe Springs Oil Co.:		
Brunson #1	72	86
Shell Oil Co.:		
G. H. & N	7,533	9,040
Slusher	6,302	7,562
Thompson	245	294
Total	14,080	.....
[fol. 305]		
Southern Pacific Land Co.:		
Fulton	279	335
St. Helens Pet. Corp.:		
Hill	266	319
Standard Oil Co.:		
Hepler	1,278	1,534
Johnson	169	203
Jordan	1,740	2,088
Koontz	1,019	1,223
Orr	16	19
Santa Gertrudis	1,427	1,712
S. G. & Jordan	142	170
S. Whittier Comm	4,332	5,198
Walker	1,483	1,780
Weisel	2,351	2,821
Wolfskill	25	30
Total	13,982	.....
Page Total	.....	36,657

Schedule Page d

[fol. 306] Schedule

Santa Fe Springs Oil Field

Operator and lease	Estimated potential in bbls. of oil per day	Allowed gas production in M. C. F. daily average	
Star Petroleum Company:			
Callahan	804	965	
Lamb	462	554	
Star	1,428	[1,714]*	3,000 W. H.
Total	2,694	.....	
Sunset Pacific Oil Co.:			
Brunson	472	566	
Superior Oil Co.:			
Wardman	5,050	[6,060]*	8,340 W. H.
[fol. 307]			
The Texas Company:			
Baldwin	1,667	2,000	
Batson	1,371	1,645	
Foix	1,272	1,526	
Lamb	50	60	
Matern #2	3,005	3,606	
Matern #3	4,090	4,908	
Mutual	660	792	
Patterson	1,140	1,368	
Standlee	3,638	4,366	
Steinly	998	1,198	
Weaver	2,741	3,289	
Wickman	1,368	1,642	
Total	22,000	.....	
Twin Bell Oil Synd. #1:			
Grohs	286	343	
Twin Bell Oil Synd. #2:			
Grohs	1,934	[2,321]*	3,194 W. H.
Page Total	.....	[38,923]*	

Schedule Page e

[*Erased in copy.]

[fol. 308] Schedule

Santa Fe Springs Oil Field

Operator and lease	Estimated potential in bbls. of oil per day	Allowed gas production in M. C. F. daily average	
Union Oil Co.:			
Alexander	10,374	12,449	
Bell	27,186	32,633	
Farwell	2,693	3,232	
Howard	8,064	9,677	
Meyer	6	7	
Total	48,323	.....	
Universal Cons.:			
Blanchard	2,716	3,259	
O'Connell	923	1,108	
Total	3,639	.....	
[fol. 309]			
York-Smullin Oil Co.:			
(York-Lockhart)	311	373	
Wilshire Oil Group:			
Ambassador Petroleum:			
Baker	1,653	1,984	
Bandini Petroleum:			
Off	10,950	13,140	
Commodore Petroleum:			
Babonette	1,816	2,179	
Landl	[1,621]*	[1,945]*	
	1,755	2,106	W. H.
Wilshire Oil:			
Baker	218	262	
Cecelia	1,000	1,200	
Crawford	140	168	
Peterson	650	780	
[fol. 310]			
Wilshire Annex:			
Eagle	404	485	
Koontz	1,350	1,620	
Crawford	530	636	
Total	17,876	.....	
Grand Total	[237,442]*	295,898	W. H.
Field Total	237,576	[277,913]*	W. H.

[*Erased in copy.]

Schedule Page f

[fol. 311] It is Further Ordered, that beginning Saturday, March 22, 1930, and continuing until the further order of this Court, each defendant prepare two copies of a report, signed by its production manager and file one copy with the Clerk of this Court in this action and file the other copy with the State Oil and Gas Supervisor at his office in the City of Los Angeles, which report shall show the day of production, name of operating company, the name of the lease or other operating property, the identification of each well from which the oil and gas, or oil or gas, was produced, and the quantity of oil and the quantity of gas produced from each well during the day of twenty-four (24) hours covered by the report, the persons to whom the gas is delivered, the quantity disposed of from each lease or other operating property for repressuring, for plant fuel, for field use, for other fuel use, to companies for resale, for transport out of the field, and the quantity blown to the air, and each said report shall be filed as aforesaid within forty-eight (48) hours after the expiration of the day to which the report refers. Each operator shall likewise file a summary for the seven (7) day period of March 22nd to 28th, inclusive, and for the period of March 29th to April 4th, inclusive, and for the period of April 5th to 11th, inclusive, showing for each seven (7) day period each of the items above mentioned each signed by [fol. 312] its production manager. The State Oil and Gas Supervisor is authorized and directed to require each defendant to install such meters and other measuring devices upon each lease or other operating property and at each well thereon as may be necessary, and otherwise to require the defendant to operate each well and to keep the production therefrom available for measurement in such manner as shall enable said State Oil and Gas Supervisor to check both said reports and the measuring devices and the production equipment to determine the accuracy of said reports and the amount of both oil and gas production for the time being from each of said wells. Formation gas production shall be reported where well is on gas lift.

It Is Further Ordered, that nothing in this Order contained shall prevent any defendant from allowing any well now drilling or hereafter drilled by him or it in said Santa Fe Springs Oil Field from discharging gas into the air dur-

ing such time as may be necessary properly to complete and place each such new well on production, and for a period not exceeding five (5) days thereafter so long as the lessor, lessee or operator completing such new well proceeds with diligence according to the best practice in the field and in compliance with law and regulations of the [fol. 313] State Oil and Gas Supervisor made pursuant thereto to place such new well on production, and to prevent the gas from such new well being blown or allowed to escape into the air; and the production of any such new well that may be completed and placed on production by any defendant herein subsequent to March 13, 1930, after being tested as above provided shall be considered by the Court in determining the potential production of any of the defendants herein on any application for the modification of this injunction; and

It is Further Ordered that this Order of Preliminary Injunction is made without prejudice to the right of the plaintiffs or of the defendants, or any of them, at any time hereafter on five (5) days notice to counsel for parties who have appeared in the action to move to vacate or modify the injunction hereby granted whenever so advised, and the court expressly reserves jurisdiction to hear and determine any such motion and thereupon to continue in effect or vacate or modify this preliminary injunction.

It Is Further Ordered, that without further notice cause may be shown in Department 43 of this Court, at 10:00 o'clock a. m. on April 14, 1930, why this preliminary injunction should not be modified or vacated or discharged, or a new and further preliminary injunction made herein. [fol. 314] "Gas-oil ratio" as used in this order is the proportion which the total number of cubic feet of formation gas bears to the total number of barrels of net oil produced from the same well at the same time, exclusive of the quantity of gas inserted in the well for the purpose of lifting the oil. A "barrel of oil" as used herein contains forty-two (42) liquid gallons of oil. A "cubic foot of gas" as referred to herein is measured at a temperature of 60° F. and a pressure of 14.733 pounds per square inch.

Santa Fe Springs Oil Field herein referred to is that portion of the County of Los Angeles, described as follows, to wit:

The southeast quarter of Section 36, Township 2 South, Range 12 West, and the East half of Section 1, Township 3 South, Range 12 West, and the South half of Section 31, Township 2 South, Range 11 West, and all of Section 5 and all of Section 6, and the North half of Section 7 of Township 3 South, Range 11 West, S. B. B. & M.

Done in open court this 19th day of March, 1930.

William Hazlett, Judge of the Superior Court.

[fol. 315] EXHIBIT 19 TO PETITION

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND FOR THE COUNTY OF LOS ANGELES

No. 287,460

PEOPLE OF THE STATE OF CALIFORNIA on Relation of FRED G. STEVENOT, Director of Natural Resources of the State of California, Plaintiff,

vs.

ASSOCIATED OIL COMPANY et al., Defendants

Order Modifying Preliminary Injunction and Extending to New Parties the Preliminary Injunction as Modified

The above named plaintiffs, People of the State of California, by Fred G. Stevenot, Director of Natural Resources of the State of California, having on March 21, 1930, filed their verified supplemental complaint in the above entitled action against defendants E. K. Allison Syndicate, Barnhart-Morrow Consolidated, Cypress Petroleum Company of California, The Elmer Co., Ltd., Ethyl Oil Company, A. L. Jameson, W. S. Kyle, Herbert R. Macmillan, Rohde Oil Syndicate No. 3, Rohde Oil Syndicate, Santa Fe Springs Oil Company and Mendota Petroleum Company, among other things praying for an order to show cause why a preliminary injunction should not issue and why said defendants to the supplemental complaint should not be bound by the preliminary injunction issued herein on the [fol. 316] 19th day of March, 1930, due notice having been given of an application to modify said preliminary injunc-

tion as provided therein, and the said matters coming on regularly for hearing in said Superior Court, the Honorable William Hazlett presiding; and

Plaintiffs appearing by James S. Bennett and George R. Larwill, their attorneys; and

Defendant E. K. Allison Syndicate appearing by Milton Krug, its attorneys;

Defendant The Elmer Co., Ltd., appearing by Verne E. Robinson and Salisbury & McNeil, its attorneys;

Defendant The Ethyl Oil Company appearing by Edgar K. Brown, its attorneys; and

Defendant A. L. Jameson and Defendant Oscar R. Howard appearing by McAdoo, Neblett, O'Connor & Claggett, by Edward H. Mitchell, their attorneys;

Defendant Associated Oil Company appearing by Harrison Guio, its attorneys;

Defendant The Texas Company, appearing by Charles C. Stanley, its attorney;

Defendant Union Oil Company of California appearing by Paul M. Gregg and Jerry H. Powell, its attorneys;

Defendant Shell Oil Company appearing by McCutchen, Olney. Mannon & Greene by Julian P. Beek, its attorneys;

[fol. 317] Defendant George F. Getty, Inc., appearing by Rush M. Blodget and George W. Nilsson, its attorneys;

Defendant General Petroleum Corporation of California appearing by William Appleford, its attorney;

Defendant Superior Oil Company appearing by Chandler, Wright & Ward, by Howard Wright, its attorneys;

Defendants Second Twin Bell Syndicate and Twin Bell Oil Syndicate appearing by Neil S. McCarthy, their attorney; and

Defendants Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Annex Oil Co., and Wilshire Oil Co., Inc., appearing by Call and Murphey, Robert B. Murphey and William L. Murphey, their attorneys;

Proof having been made of the service of said supplemental complaint, summons, memorandum of authorities and order to show cause issued upon the filing of said supplemental complaint, and the service therewith of the complaint herein and the amendment thereto and the affidavits of Reed D. Bush, Emile Huguenin, E. G. Gaylord and Claude C. Brown, all within the time provided by the order

of this court to show cause, and the hearing having been regularly continued until this time, and now coming on regularly for hearing; and

[fol. 318] The Court having taken testimony, both oral and documentary, in open court and having heard the attorneys for plaintiffs and the attorneys for defendants appearing herein, the court finds that said new defendants brought in by said supplemental complaint, and each of them, should be bound by the preliminary injunction as modified by this order; that to preserve the subject matter of the action to abide the decree of the court at the conclusion of the trial it is necessary and the equities of all parties will be fairly conserved by including in the schedule contained in said preliminary injunction the new wells brought in since March 13, 1930, and adjusting the items of "allowed gas production in M. C. F. daily average" as hereinafter provided; that accordingly the items of the "schedule" contained in said preliminary injunction of March 19, 1930 for the particular operator and lease hereinafter mentioned are modified so as to read as follows:

[fol. 319] Changes in Schedule

Santa Fe Springs Oil Field

Operator and lease	Estimated potential in bbls. of oil per day		Allowed gas production in M. C. F. daily average	
E. K. Allison Syndicate:				
Lot —, Bl. 87	705	.....	846	.....
Barnhart-Morrow:				
Julian-Brunson	601	.....	721	.....
Globe-Brunson	166	.....	199	.....
Cypress Petroleum:				
Wardman	[387]*	732	[784]*	886
Elmer Oil Co.:				
Jameson	[228]*	709	[274]*	950
Ethyl Oil Co.:				
Butterworth	350	.....	420	.....
General Petroleum Corp.:				
Jalk	[548]*	570	[658]*	684
Santa Fe Comm	[53,816]*	54,443	[64,580]*	65,331

[fol. 320]

Operator and lease	Estimated potential in bbls. of oil per day		Allowed gas production in M. C. F. daily average	
Geo. F. Getty, Inc.:				
Mitchell	[2,237]*	2,599	[2,634]*	4,129
Schaeffer	.....	91	.....	109
Kyle, W. S.:				
Off	142	.....	170	.....
Macmillan, H. R.:				
Ratliff	210	.....	252	.....
Mendota Petroleum:				
Baker	149	.....	179	.....
Richfield Oil Co.:				
Howard	[1,258]*	1,471	[1,510]*	1,765
Ring Oil Co.:				
Ratliff	[211]*	298	[253]*	357
Rohde Oil Synd. #1:				
Rohde—1	401	.....	481	.....
Rohde Oil Synd. #3:				
Rohde #3	1,468	.....	[1,762]*	2,250
Star Petroleum Company:				3,285
Star	1,428	1,666	[1,714]*	[3,000]*

Schedule Page a

[fol. 321] Changes in Schedules

Santa Fe Springs Oil Field

Operator and lease	Estimated potential in bbls. of oil per day		Allowed gas production in M. C. F. daily average	
Union Oil Co.:				
Bell	[27,186]*	28,164	[32,633]*	33,806
Universal Cons.:				
Blanchard	[2,716]*	2,887	[3,259]*	3,464
Wilshire Oil Group:				
Bandini Petroleum	.....	.....	.....	.....
Off	.....	.....	.....	.....
Wilshire Annex:				
Eagle	[404]*	441	[485]*	529
Kountz	[1,350]*	2,124	[1,620]*	2,549

[*Erased in copy.]

Except as hereby modified the Schedule contained in the Preliminary Injunction of date March 19, 1930, is confirmed and continued in force.

Schedule Page b

[fol. 322] Provided, however, the defendant George F. Getty, Inc., may at its option combine its Biddle, Hill and Nordstrom leases and operate the same as a unit, and may produce from said unit the total quantity of "allowed gas production in M. C. F. daily average" allowed by the said schedule for the three said leases so long as the said George G. Getty, Inc., divides the net return from the said unit of three leases and assigns to each lease its fractional part of said net returns in the proportion that the number of barrels of oil assigned to each of said leases in the "estimated potential in barrels of oil per day" by said schedule bears to the total barrels of oil assigned to said three leases by said schedule, unless and until the said lessors of said George F. Getty, Inc., agree to accept some other or different basis for determining the royalty reserved by them respectively; and

Provided further, that at the option of any three or more defendants operating five or more leases within that area of Santa Fe Springs Oil Field hereinafter described, said three or more defendants may operate said five or more leases as a unit so long as the defendants operating any such unit of five or more leases divide the net returns from said unit of five leases, and assign to each lease its fractional part of said net returns in the proportion that the number of barrels of oil assigned to each of said leases in [fol. 323] the "estimated potential in barrels of oil per day" by said schedule bears to the total barrels of oil assigned to said five leases by said schedule, unless and until the said lessors of said respective five leases agree to accept some other or different basis for determining the royalty reserved by them, respectively, and the total of "allowed gas production in M. C. F. daily average" of any five leases so operated as a unit shall not exceed the total allowed to said five leases separately by said schedule.

The said area of Santa Fe Springs Oil Field herein referred to is described as follows, to wit:

Beginning with the intersection of the center line of Norwalk and Puente Mills Road with the center line of Fulton (Anaheim-Telegraph) Road; thence easterly along the center line of said Fulton Road to its intersection of the center line of Butler Road; thence southerly along the center line of Butler Road to its intersection of the center line of Little Lake Road; thence westerly along the center

line of Little Lake Road to its intersection with the center line of Forest Street; thence northerly along the center line of Forest Street to its intersection with the center line of Curtis Avenue; thence westerly along the center line of Curtis Avenue to its intersection with the center line of Spring Street; thence northerly along the center line of Spring Street to its intersection of Clark Avenue; thence [fol. 324] westerly along the center line of Clark Avenue to its intersection with the center line of Norwalk and Puente Mills Road; thence northerly along the center line of Norwalk and Puente Mills Road to the point of beginning.

Provided further that any defendant may accumulate the "allowed gas production in M. C. F. daily average" according to the said schedule for any lease wholly situated within that portion of the town lot area of the Santa Fe Springs Oil Field in the preceding provision described for the twenty-one (21) days from March 29, 1930, to April 12, 1930, inclusive, and produce all the oil he can produce from said lease with said accumulated quantity of gas, but said defendant shall produce no more gas from said lease during said period than the total quantity of gas so allowed by said schedule for the same period of time.

On or before April 2, 1930, each defendant shall reduce its gas production to the quantity allowed hereunder for each lease, and thereafter keep its gas production within the quantity allowed.

It is further ordered, that beginning Saturday, March 29th, 1930, and continuing until the further order of this court, that in substitution of the reports now required each defendant prepare two copies of a report, signed by its [fol. 325] production manager, and file one copy with the Clerk of this Court in this action and file the other copy with the State Oil and Gas Supervisor at his office in the City of Los Angeles, which report of a defendant operator shall show:

1. Date.
2. Name of Company.
3. Name of Lease.
4. Well number.
a. Oil production.
b. Net formation gas production.

c. Disposition of the wet gas produced (that is, whether used as fuel direct, blown to air, or delivered to a gasoline plant, etc.).

Which report of a defendant operating a gasoline plant shall show:

Santa Fe Springs Field

Daily Plant Summary Report

For 24 Hours Ending ——

Name of Gasoline Company: ——

Total wet gas treated	Plant fuel shrinkage & line loss	Dry gas returned to leases or companies	Gas sold and transported	Gas wasted to air
.....	.....	.....	.....	.....

And, further, if it be necessary to determine daily figures as to the nature of field gas consumption, each producer to be required to submit a daily consumption report as follows:

[fol. 326] 1. Dry gas circulated.
2. Dry gas repressured.
3. Dry gas fuel.
4. Dry gas blown to air on lease (if any).

Within ten days after the end of the month each company shall furnish a report in duplicate covering the full month's operation in detail, and with absolute accuracy signed and filed as aforesaid.

It is further ordered, that this Order of Preliminary Injunction is made without prejudice to the right of the plaintiffs or of the defendants, or any of them, at any time hereafter on five (5) days' notice to counsel for parties who have appeared in the action to move to vacate or modify the injunction hereby granted whenever so advised, and the court expressly reserves jurisdiction to hear and determine any such motion and thereupon to continue in effect or vacate or modify this preliminary injunction.

It is further ordered, that without further notice cause may be shown in Department 43 of this court, at 10:00 o'clock a. m. on April 14, 1930, why this preliminary in-

junction should not be modified or vacated or discharged, or a new and further preliminary injunction made herein. [fols. 327 & 327a] As herein modified said Preliminary Injunction of date March 19, 1930, is hereby confirmed and each and every defendant commanded to strictly observe the same.

Done in open court this 28th day of March, 1930.

William Hazlett, Judge of the Superior Court.

[fol. 327b] In District Court of Appeal of California, Second Appellate District, Division Two

Civil. 7292

Bandini Petroleum Corp. et al.

vs.

Superior Court Los Angeles County, etc.

Order Directing Issuance of Writ of Prohibition—April 9, 1930

By the Court:

Let the Writ (Prohibition) issue as prayed, returnable April 21, 1930, 10 A. M.

Craig, Acting P. J.

[fol. 328] In District Court of Appeal of California, Second Appellate District, Division Two

[Title omitted]

Alternative Writ of Prohibition

The People of the State of California to the Superior Court of the State of California in and for the County of Los Angeles and to the Honorable William Hazlett, Judge thereof, Greetings:

You, the Superior Court of the State of California in and for the County of Los Angeles, and the Honorable William Hazlett, Judge thereof, and all officers, agents and persons acting by or through its orders, are hereby commanded, until the further order of this Court, to desist and refrain

from taking any steps or proceedings to enforce the order in Action No. 287,460 in said Superior Court granting a preliminary injunction dated March 19, 1930, as made, or as modified on or about March 28, 1930, against Bandini Petroleum Company, Commodore Petroleum Company, [fol. 329] Wilshire Oil Company, Inc., Wilshire Annex Oil Company and Ambassador Petroleum Company, or any of them, or any of the officers, agents, employees or representatives of any of said petitioners, either by contempt proceedings or by any process or in any other manner, and from making any order or taking any further steps or proceedings in said action affecting any or all of said petitioners; and the said Superior Court and said Honorable William Hazlett, as judge thereof, are hereby directed and required to show cause before this court, on the 21st day of April, 1930, at the hour of 10 o'clock A. M. thereof, in the courtroom of said court in the Associated Realty Building at the southwest corner of Sixth and Olive Streets, in the City of Los Angeles, California, why you and each of you should not each be absolutely and forever restrained from taking any further steps against any of said petitioners based upon the said order granting said preliminary injunction or the said order of March 28, 1930, modifying the same, and from making any order or taking any further steps or proceedings in said action affecting petitioners or any of them.

It is further ordered by this court that a copy of the verified petition on file herein, together with a copy of petitioners' points and authorities, shall be served on each of [fol. 330] respondents herein and upon the Attorney General of the State of California and James S. Bennett, Esquire, attorneys for the People of the State of California on relation of Fred G. Stevenot, as Director of Natural Resources of the State of California, at least five (5) days before the said hearing.

Witness the Honorable Gavin W. Craig, Acting Presiding Justice of Division Two of the District Court of Appeal of the Second Appellate District, State of California.

Attest my hand and the seal of the said court, this 9th day of April, 1930.

H. C. Lillie, Clerk of the District Court of Appeal, Second Appellate District, State of California, by J. E. Brown, Deputy. (Seal.)

[fol. 331] In District Court of Appeal of California, Second Appellate District, Division Two

[Title omitted]

Demurrer to Petition for Alternative Writ of Prohibition

Come now the respondents above named, and, at the time of filing their answer and return to the alternative writ of prohibition therein, file this their demurrer to the petition herein and to said alternative writ of prohibition, upon each ot the following grounds, to-wit:

1. That said petition does not state facts sufficient to sonstitute a cause of action.

2. That said petition was and is insufficient to give this District Court of Appeal jurisdiction to issue or cause to be issued an alternative writ of prohibition, or to make any order in the premises.

3. That said petition does not show lack of jurisdiction [fol. 332] in respondent as a court of equity to issue a preliminary injunction in said action pending before respondents, referred to in said petition.

4. That said petition does not disclose any want of jurisdiction in respondents.

5. That said petition does not disclose that respondents have or are about to exceed their jurisdiction in the action now pending before respondents, in which said petitioners are defendants and referred to in said petition.

6. That said petition does not disclose that defendant petitioners are without an adequate remedy by appeal in the event respondents commit error prejudicial to defendant petitioners in said action now pending before respondents and referred to in said petition.

Wherefore respondents pray that said or any order made directing the issue of said alternative writ of prohibition be discharged, and that respondents be directed forthwith to proceed with said cause in accordance with law and rules of the court and practices of a court of equity.

U. S. Webb, Attorney General of the State of California, and James S. Bennett, Attorneys for Respondents.

[fol. 333] [File endorsement omitted]

IN DISTRICT COURT OF APPEAL OF CALIFORNIA, SECOND APPELLATE DISTRICT, DIVISION TWO

Civil. No. 7292

BANDINI PETROLEUM COMPANY, a Corporation; COMMODORE Petroleum Company, a Corporation; Wilshire Oil Company, Inc., a Corporation; Wilshire Annex Oil Company, a Corporation, and Ambassador Petroleum Company, a Corporation, Petitioners,

vs.

THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND for the County of Los Angeles and Honorable William Hazlett, as One of the Judges Thereof, Respondents

Petition for Writ of Prohibition

For Petitioners: Call & Murphey, Robert B. Murphey, and Wm. L. Murphey.

For Respondents: U. S. Webb, Attorney General, and James S. Bennett.

Amici Curiæ: Charles A. Son, Arthur R. Smiley, Roland Rich Wooley, Rush M. Blodgett and George W. Nilsson, and Robt. M. Pease and Roy P. Dolley.

OPINION—Filed Nov. 29, 1930

This is an original prohibition proceeding. The petitioners seek to prevent the respondent court from enforcing a preliminary injunction and order modifying the same and also to check any further order or proceeding against them in an action pending in the respondent court entitled People of the State of California on relation of Fred G. [fol. 334] Stevenot, Director of Natural Resources of the State of California v. Associated Oil Company, et al., which action was brought for the purpose of enjoining all of the defendants therein named from unreasonably wasting natural gas from their wells in the Santa Fe Springs oil field. On March 19, 1930, after hearing the parties to the action, the court granted a temporary injunction limiting and defining the amount of gas which the defendants would be

allowed to permit to escape into the air from their wells in the field mentioned. On March 28, 1930, the court made another order somewhat relaxing the terms of the injunction pendente lite. It is asserted by petitioners that they have been irreparably injured and damaged by attempting to curtail the production of natural gas; that there is no market for a large part thereof and that if they are to be allowed, as they calim it is their right, to employ the gas as a lifting power to raise the oil from below the surface they must of necessity permit a portion thereof to escape into the air; that prior to the temporary injunction they were producing 19,554 barrels of oil per day but that operating most efficiently under the amount of gas allowed to be used by the modified order they cannot possibly produce more than 10,211 barrels per day.

The action was instituted in the respondent court pur- [fol. 335] suant to the provisions of "An Act to protect the natural resources of petroleum and gas from waste and destruction, etc.," (Stats. 1929, p. 923) the sections of which pertinent at this point in our discussion read as follows: "Sec. 8b. The unreasonable waste of natural gas by the act, omission, sufferance or insistence of the lessor, lessee or operator of any land containing oil or gas, or both, whether before or after the removal of gasoline from such natural gas, is hereby declared to be opposed to the public interest and is hereby prohibited and declared to be unlawful. The blowing, release or escape of natural gas into the air shall be prima facie evidence of unreasonable waste. Sec. 14b. Whenever it appears to the director of the department of natural resources that the owners, lessors, lessees or operators of any well or wells producing oil and gas or oil or gas are causing or permitting an unreasonable waste of gas, he may institute, or have proceedings instituted, in the name of the people of the State of California, to enjoin such unreasonable waste of gas regardless of whether proceedings have or have not been instituted under section 8" (a section authorizing the oil and gas supervisor to issue certain orders) "hereof, and regardless of whether an order has or has not been made therein. Such proceedings shall be instituted in the [fol. 336] superior court for the county in which the well or wells from which the unreasonable waste of gas is oc-

curring or any thereof are situated. The owners, lessors, lessees or operators causing or permitting an unreasonable waste of gas in the same oil or gas field, although their properties and interests may be separately owned and their unreasonable waste separate and distinct, may be made parties to said action. In such suits no restraining order shall be issued ex parte, but otherwise the procedure shall be governed by the provisions of chapter three, title seven, part two of the Code of Civil Procedure of the State of California" (a chapter relating to injunctions) "and no temporary or permanent injunction issued in such proceedings shall be refused or dissolved or stayed pending appeal upon the giving of any bond or undertaking, or otherwise."

The arguments of the petitioners may be grouped into the following propositions, First: The act deprives petitioners of property without just compensation and without due process of law; Second: The statute is void for uncertainty and for failure of the legislature to define a standard of conduct; Third: The enactment permits the use of gas for lifting purposes in a reasonable proportion to the amount of oil produced and that the uncontroverted evi- [fol. 337] dence shows no other or greater use and for that reason the court was without jurisdiction to grant the temporary injunction.

Turning then to the first contention, it is asserted that the act is violative of the Fourteenth Amendment to the Federal Constitution, and sections 13 and 14 of Article I of the State constitution. To put the argument most favorably for the petitioners it is asserted that they have the same vested right to make use of the gas under their property for the purpose of lifting the oil thereunder that a riparian owner has to make use of the underflow of a stream passing through his property to lift the water levels of entry upon his land. It is therefore insisted by counsel that it is of prime importance to examine the nature of petitioner's rights. While this is true in a degree, yet we do not attach the same weight as do petitioners to the pure legal question whether the owner of the surface is the owner of the gas in place under his soil subject to the right of an adjoining owner to appropriate to himself the title thereof by capture and possession, or whether the owner

of the surface is vested only with the right to bore for gas and reduce it to possession. In either event he is the owner of a valuable right. Every owner of the surface [fol. 338] has a like interest and right of property, whatever it may be. We think, however, that the better reasoning, on account of the self propelling or migratory character of natural gas, as well as oil, dictates the conclusion that while in general we may speak of the owner of the surface as being the owner of the gas and oil in place, what we really mean is that he and he alone has the right through his own property to endeavor to reduce the substances to possession; that when they are reduced to possession and then only does he have an absolute and unqualified title thereto. It is argued by petitioners and by some of those who have appeared as amici curiæ that the law of California is settled to the effect that the owner of the surface is the owner of the gas and oil in situ. There are some general expressions in the authorities to this effect, particularly in tax cases where the assessments have been levied upon a lease giving and granting to the lessee the right to bore for and extract the hydro-carbon substances. But they are not controlling or helpful here. On the other hand, in distinguishing between oil and other minerals in the case of Acme Oil Co. v. Williams, 140 Cal. 681, (74 Pac. 296) the Supreme Court said:

"Oil, on the contrary, is of a fluctuating, uncertain, fugitive nature, lies at unknown depths, and the quantity, ex- [fol. 339] tent and trend of its flow are uncertain. It requires but a small surface area, in what is known as an oil district, upon which to commence operations for its discovery. But when a well is developed the oil may be tributary to it for a long distance through the strata which holds it. This flow is not inexhaustible, no certain control over it can be exercised, and its actual possession can only be obtained, *as against others in the same field*, engaged in the same enterprise, by diligent and continuous pumping. *It is the property of anybody who can acquire the surface right to bore for it*, and when the flow is penetrated, he who operates his well most diligently obtains the greatest benefit, and this advantage is increased in proportion as his neighbor similarly neglects his opportunity." (Italics ours.)

It is the co-existence of these rights which authorizes the state to make use of its legislative power. When the rights of one impinge upon the rights of others the state may interpose for the purpose of adjusting and regulating the enjoyment of those rights. This is, in a large part at least, the foundation of all the authorities which support the power of the state to regulate the production of oil and gas. In Ohio Oil Co. v. Indiana, 177 U. S. 190, (44 L. Ed. 729) it is said:

"No one owner of the surface of the earth, within the [fol. 340] area beneath which the gas and oil move can exercise his right to extract from the common reservoir, in which the supply is held, without to an extent, diminishing the source of supply as to which all other owners of the surface must exercise their rights. The waste by one owner, caused by a reckless enjoyment of his right of striking the reservoir, at once, therefore, operates upon the other surface owners," and "* * * (T)he surface proprietors within the gas field all have the right to reduce to possession the gas and oil beneath. They could not be absolutely deprived of this right which belongs to them without a taking of private property. *But there is a coequal right in them all to take from a common source of supply the two substances which in the nature of things are united, though separate.* It follows from the essence of their right and from the situation of the things as to which it can be exerted, that the use by one of his power to seek to convert a part of the common fund to actual possession may result in an undue proportion being attributed to one of the possessors of the right to the detriment of the others, *or by waste by one or more to the annihilation of the rights of the remainder.* Hence it is that the legislative power, from the peculiar nature — the right and objects upon which it is to be exerted, can be manifested for the purpose of [fol. 341] protecting all the collective owners, by securing a just distribution, to arise from the enjoyment by them of their privilige to reduce to possession, and to reach the like end by preventing waste." (Italics ours.)

In Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61, (55 L. Ed. 369) where the court was considering a statute designed to prevent the waste of natural mineral water by

pumping for the purpose of extracting the gas therefrom, after reference to and a discussion of the Ohio Oil Company case just mentioned it is said:

"The mineral waters and carbonic acid gas exist in a commingled state in the underlying rock, and neither can be drawn out without the other. They are of value in their commingled form and also when separated, but the greater demand is for the gas alone. Influenced by this demand, some surface owners, having wells bored or drilled into the rock, engage in extensive pumping operations for the purpose of collecting the gas and vending it as a separate commodity. Usually where this is done an undue proportion of the commingled waters and gas is taken from the common supply, and a large, if not the larger, portion of the waters from which the gas is collected is permitted to run to waste. Thus these pumping operations generally result in an unreasonable and wasteful depletion of the common supply and in a corresponding injury to others equally [fol. 342] entitled to resort to it. It is to correct this evil that the statute was adopted, and the remedy which it applies is an enforced discontinuance of the excessive and wasteful features of the pumping. It does not take from any surface owner the right to tap the underlying rock and to draw from the common supply, but, consistently with the continued existence of that right, so regulates its exercise as reasonably to conserve the interests of all who possess it. That the state, consistently with due process of law, may do this, is a necessary conclusion from the decision in the case cited. But were the question an open one, we still should solve it in the same way."

We ought to pause long enough to direct attention to this last sentence on account of its bearing upon the argument presented here that the rule established by Ohio Oil Co. v. Indiana, supra, has becomes obselete.

In Commonwealth v. Trent, 117 Ky. 34, (4 Am. & Eng. Ann. Cas. 209) the court places the source of the regulatory power upon both grounds in the following language:

"It is well known that the supply of gas is limited, and may be exhausted. The act is intended to protect the supply from waste. Under the act, it is conceded, a person to exhaust the supply of his neighbor, cannot put down

[fol. 343] wells on his own land and allow the gas to escape from the well. * * * The legislature may protect from waste the natural resources of the state, which are the common heritage of all. The right of the owner of property to do with it as he pleases is subject to the limitation that he must have due regard for the rights of others. To allow the storehouse of nature to be exhausted by the waste of the gas would be to deprive the state and its citizens of the many advantages incident to its use. That the legislature may prevent this is well settled." (Citing cases.)

In Oklahoma the statute not only prevented the escape of gas into the air, "the intentional drowning with water of a gas stratum", the "underground waste" of gas, but also the "wasteful utilization of such gas." The supreme court of that state in the case of Quinton Relief Oil and Gas Co. v. Corporation Commission, 224 Pac. 156, after referring to Walls v. Midland Carbon Co., 254 U. S. 300, (65 L. Ed. 276) where a somewhat similar statute of Wyoming was under scrutiny, said: "A careful examination of the authorities show- that there is almost unanimity in holding that the burning of natural gas for carbon purposes in high pressure fields having sufficient rock pressure to force gas through a pipe line to domestic consumers, and where the same may be used for such purpose, constitutes a waste- [fol. 344] ful utilization thereof. Natural gas has twice the heating units as (sic) artificial gas, and taking into consideration the convenience of natural gas, it is intrinsically worth more than artificial gas; its market value being from $2.00 to $3.00 per thousand cubic feet. The amount of carbon black produced from 1,000 cubic feet of natural gas has a market value of about 10 cents. It therefore is obvious that the state, in the proper exercise of its police power and in conservation of so valuable a natural resource as natural gas, may prohibit the wasteful utilization of the same in the interest of the public welfare." In State v. Carson Carbon Co., 162 La. 781 (111 So. 162), the supreme court of Louisiana sustained an enactment by which the owners of gas wells were prohibited from taking and using for the manufacture of carbon black more than 20% of the potential capacity of a gas well. In Oxford Oil Co. v. Atlantic Oil & Producing Company, 22 Fed. (2nd) 597, the court says:

"The right of a state to so regulate the drilling of wells for oil and gas as to conserve the rights of adjoining owners is too well settled to admit of serious controversy. Ohio Oil Co. v. Indiana, 177 U. S. 190, 20 S. Ct. 576, 44 L. Ed. 720; Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61, 31 S. Ct. 337, 55 L. Ed. 369, Ann. Cas. 1912 C. 160. It was [fol. 345] within the power of the legislature to lay down a general rule for the protection of the mineral rights of the owners of adjoining lands, and to leave the details of enforcing that rule to an administrative agency or board. Plymouth Coal Co. v. Pennsylvania, 232 U. S. 531, 34 S. Ct. 359, 58 L. Ed. 713."

By a divided court in the case of Walls v. Midland Carbon Co., 254 U. S. 300, 65 L. Ed. 276, a statute of Wyoming declaring the use of natural gas from a well within 10 miles of an incorporated city "without the heat therein contained being fully and actually applied and utilized for either manufacturing or domestic purposes" to be a "wasteful and extravagant use" and unlawful, was held valid and constitutional. The court reasserted the doctrine that "a state may consider the relation of rights, and accom-odate their co-existence, and, in the interest of the community, limit one that others may be enjoyed." It also says:

"The determining consideration is the power of the state over, and its regulation of, a property in which others besides the companies may have rights and in which the state has an interest to adjust and preserve, natural gas being one of the resources of the state. And in this consideration it is more important to consider not for what a particular owner uses the gas, but the proportion of his use to that of [fol. 346] others, or, it may be, the prevention of use by others; * * *".

It is apparent from the quotations that the legislative power of the state may be exercised for the purpose of adjusting co-existing rights. They also tend to indicate that the state may restrict or regulate the production of oil or gas on the theory of the public's interest in their natural resources. Whether this latter may be done we think is unnecessary to a decision of the present application. But as indicating that there is grave doubt concerning this power

we here make reference to the case of West v. Kansas Natural Gas Co., 221 U. S. 229, 55 L. Ed. 716. The state of Oklahoma attempted to prohibit the construction of pipe lines for natural gas or the transportation of the same except by domestic corporations, the charters of which were to provide that it should only be transported between points in the state and not outside. The court in declaring the statute void said with reference to the power of the state to "preserve the common property" as distinguished from the right of the state to prevent waste:

"The extent of power which the second question implies a state possesses challenges serious inquiry. The natural resources of a state may be other than natural gas; for example, may be timber, and coal and iron and other metals; but it is contended that the right of conservation [fol. 347] extends to these, and the broad statement of the first question" (the right of the state to preserve its resources) "is qualified in the argument by the properties of natural gas and the limitation of its supply. This, it is contended, gives a range to the police power of the state which otherwise it would not possess. And such power, as we understand the further contention to be, may determine not only the conservation of the resources of the state but as to what class of persons may use them, as dependent upon their transportation in state, rather than in interstate commerce. * * * The statute of Indiana" (considered in Ohio Oil v. Indiana, supra) "was directed against waste of the gas, and was sustained because it protected the use of all the surface owners against the waste of any. The statute was one of *true conservation securing the rights of property, not impairing them.* Its purpose was to secure to the common owners of the gas a proportionate acquisition of it—a reduction to possession and property—not to take away any right of use or disposition after it had thus become property. It was sustained because such was its purpose; and we said that the surface owners of the soil, owners of the gas as well, *could not be deprived of the right to reduce it to possession without the taking of private* [fol. 348] *property.* It surely cannot need argument to show that if they could not be deprived of the right to reduce the gas to possession, they could not be deprived of any right which attached to it when in possession. The

Oklahoma statute far transcends the Indiana statute. It does what this court took pains to show that the Indiana statute did not do. It does not protect the rights of all surface owners against the abuses of any. *It does not alone regulate* the right of the reduction to possession of the gas, but, when the right is exercised, when the gas becomes property, takes from it the attributes of property—the right to dispose of it; indeed, selects its market, to reserve it for future purchasers and use within the state, *on the ground that the welfare of the state will thereby be subserved. The results of the contention repel its acceptance. Gas, when reduced to possession, is a commodity; it belongs to the owner of the land; and, when reduced to possession, is his individual property, subject to sale by him, and may be a subject of intrastate commerce and interstate commerce.* The statute of Oklahoma recognizes it to be a subject of intrastate commerce, but seeks to prohibit it from being the subject of interstate commerce, and this is the purpose of its conservation. In other words, the purpose of its con- [fol. 349] servation is in a sense commercial—the business welfare of the state, as coal might be, or timber. Both of those products may be limited in amount, and the same consideration of the public welfare which would confine gas to the use of the inhabitants of a state would confine them to the inhabitants of the state. If the states have such power, a singular situation might result. Pennnsylvania might keep its coal, the Northwest its timber, the mining states their minerals. And why may not the products of the field be brought within the principle? Thus enlarged, or without that enlargement, its influence on interstate commerce need not be pointed out. To what consequences does such power tend? If one state has it, all states have it; embargo may be retaliated by embargo, and commerce will be halted at state lines. And yet we have said that 'in matters of foreign and interstate commerce there are no state lines.' In such commerce, instead of the states, a new power appears and a new welfare—a welfare which transcends that of any state. But rather let us say it is constituted of the welfare of all of the states, and that of each state is made the greater by a division of its resources, natural and created, with every other state, and those of every other state with

it. This was the purpose, as it is the result, of the inter-[fol. 350] state commerce clause of the Constitution of the United States. If there is to be a turning backward, it must be done by the authority of another instrumentality than a court." (Italics ours.)

It is argued however, that the statute involved herein does not proceed upon the theory of correlative rights, but only upon the policy of conserving or preserving the common supply. We cannot assent to this statement or construction of the enactment. It is true that section 8b of the act declares the "unreasonable waste of natural gas * * * to be opposed to the public interest" and "to be unlawful" but it is also apparent from a reading of the entire act that unreasonable waste of gas is considered to be the production of an undue proportion of gas to the amount of oil, in the particular field involved, by one surface owner as against others, in those instances where the gas is not conveniently necessary for the "generation of light, heat, power or other *purpose* industrial purpose." That this is the intent and purpose of the law is made manifest from the following quotation from section 8d:

"If it shall appear that gas is being produced from any oil well or wells in quantities exceeding *a reasonable proportion to the amount of oil produced* from the same well [fol. 351] or wells, even though it is shown that such excess gas is being used in the generation of light, heat, power or other industrial purpose and that there is sufficient other gas available for such uses from other wells in the same or other fields in which the gas produced is not in excess of the amount which bears *a reasonable proportion to the amount of oil produced* from such other wells and that there are adequate gaspipe-line connections between such other wells and the place of utilization of such gas, the state oil and gas supervisor shall hold that such excess production of gas is unreasonable waste thereof if such holding will not cause an unreasonable waste of gas in any other field." (Italics ours.)

The legislation was evidently adopted upon the theory that in every oil field there is what we may term (at least for illustrative purposes) a normal proportion of gas to

oil; that when an unreasonable disproportion of gas to oil exists in a given well there is a corresponding loss of recoverable oil by other owners who would otherwise employ the lifting power of the excessive gas to good purpose; and that this disproportionate production of gas should not be permitted unless the gas as a separate thing be conveniently necessary for domestic or industrial purposes. We have not overlooked the fact that the act makes [fol. 352] the blowing or relaeas of gas into the air prima facie proof of unreasonable waste. It is to be observed, however, that such waste is not absolutely prohibited as it was in Ohio Oil Co. v. Indiana, supra, but it is only made a rule of evidence. But even if such were the results of the act the authorities from which we have quoted would dispose of the arguments of the petitioners. We are therefore irresistibly led to conclude that the statute here involved is not as stringent in its restrictions as those in other jurisdictions and further that it does not deprive the petitioners of property without just compensation or due process of law but falls rather within the legislative authority of the state with the wisdom of which we cannot be concerned.

We also find authority of a persuasive character in our own state. In Ex parte Elam, 6 Cal. App. 233, (91 Pac. 811), the court was considering a statute to prevent the waste and flow of artesian wells and making it a misdemeanor to waste the flow thereof. On account of the pertinency of the discussion relative to a similar argument we deem it expedient to set forth in full the first question raised therein and the response of the court thereto. We quote as follows:

"The first point made by petitioner—which is that the act [fol. 353] is violative of the fourteenth amendment of the constitution of the United States, which provides that no state shall 'deprive any person of life, liberty, or property without due process of law, nor deny to any person within its jurisdiction the equal protection of the law,' and of article I, section 1 of the constitution of this state, which provides that 'all men are by nature free and independent, and have certain inalienable rights, among which are those of enjoying and defending life and liberty, acquiring, possessing and protecting property', and of section 13, article

I, which provides that no person shall be 'deprived of life, liberty, or property without due process of law'—seems to have been met and demonstrated to be untenable by the Supreme Court of the United States in the case of Ohio Oil Co. v. State of Indiana, 177 U. S. 190, (20 Sup. Ct. Rep. 576). By that case it is established that water, oil, gas and all fugitive substances held in their natural subterranean reservoirs are exceptions to the general rule establishing absolute ownership in the proprietor of the surface of all that lies underneath; that these minerals being migratory in their nature, having no fixed situs, are a part of the soil only so long as they are on or in it, but after they escape and go to other lands the title of the [fol. 354] former owner is gone; that it follows, therefore, that no one owner of the surface of the earth within the area beneath which these minerals move can exercise his right to extract from the common reservoir in which the supply is held without diminishing the source of supply as to which all other owners of the surface must exercise their rights; that in consequence of the nature of the deposits, of their transmissibility, of their inter-dependence, of the rights of all and of the public at large, the state could lawfully exercise the power to regulate the right of the surface owners among themselves to seek to obtain possession, and to prevent the waste of the products in which all the surface owners within the area wherein they were deposited, as well as the public, had an interest. 'No devesting of private property under such a condition can be conceived, because the public are the owners, and the enacting by the state of a law as to the public ownership is but the discharge of the governmental trust resting in the state as to property of that character.' This water, the ownership of which, until actual possession is acquired, being in the public, or at least that portion of the public who may own the surface of the soil within the artesian belt, is subject to a reasonable use only by those interested [fol. 355] therein. This reasonable use is determined in Katz v. Walkinshaw, 141 Cal. 134, (99 Am. St. Rep. 35, 70 Pac. 663, 74 Pac. 766), to be the use of such amount of the subterranean water 'as may be necessary for some useful purpose in connection with the land from which it is taken'. The conditions existing in this state with reference to the

necessity for the conservation of irrigating waters are most clearly set our in the last case cited, and the reasons for the rule restricting the use clearly shown. Whenever a land owner exceeds this reasonable use he is appropriating to himself that which belongs to others who are entitled to a like use, and to that extent is obstructing the free use of property so as to interfere with its comfortable enjoyment, and which, by sections 3479 and 3480, Civil Code, is declared to be a public nuisance. Whatever right one has, even in his own, is subject to that established principle that his use shall not be injurious to the rights of others, *or of the general public.* This act, therefore, relates to waters, the right to the use of which is common to a large portion of the community, and affects the general public right. Legislation in relation thereto affects the public welfare, and the right to legislate in regard to its use and conservation is referable to the police power of [fol. 356] the state which is declared in Ex parte Whitwell, 98 Cal. 78, (35 Am. St. Rep. 152, 32 Pac. 870), to be 'the power to make laws to secure the comfort, convenience, peace and health of the community.' 'The police power, deriving its existence from the rule that the safety of the people is the supreme law, justifies legislation upon matters pertaining to the public welfare, the public health, or the public morals.' (Ex parte Drexel, 147 Cal. 766, (82 Pac. 429).) It is settled law that all property is held subject to the exercise of police power, and that provisions of the constitution declaring that property shall not be taken without due process of law have no application in such cases. (Odd Fellows Cem. Assn. v. San Francisco, 140 Cal. 230 (73 Pac. 987).)" (Italics ours.)

It is to be observed that the case of Ohio Oil Co. v. Indiana, supra, is apprvoed and legislation of a character very much akin to the enactment now under scrutiny has been found not to invade the constitutional provisions against deprivation of property without compensation and without due process of law.

In the discussion of the problem to this point we think the essential difference from the question involved in Herminghaus v. Southern California Edison Co., 200 Cal. [fol. 357] 81, (252 Pac. 607) is made apparent. It is to be noted that the contest in that case was between a riparian

owner, whose rights have long been established in our jurisdiction, and an appropriator of water who cannot divest a private existing right by his act of appropriation. This is quite a different thing from the adjustment and regulation of the co-existing rights of several persons. The rights here involved are more nearly analogous to those discussed in Ex parte Elam, supra, and in Eckel v. Springfield Tunnel etc. Co., 87 Cal. App. 617, (262 Pac. 425), in the latter of which cases the rule was re-announced that as between riparian owners one can only take his reasonable share thereof. It is there determined that he cannot take all that is reasonably required to develop his land but only that amount which will not unreasonably deprive the owners of co-equal rights of a proper proportion.

We therefore turn to the second angle of our problem: Is the statute void for uncertainty and the failure of the legislature to define a standard of conduct? The objection thus urged against the enactment arises from the use of the word "unreasonable." Were it not for the argument that it is not waste to permit the use of the gas to lift the [fol. 358] oil to the surface it would be obvious that without the qualifying word the enactment could not be subjected to attack upon the ground of uncertainty. As we have heretofore observed, the Indiana statutes prohibited all waste, and the United States Supreme Court concluded it to be a proper exercise of the legislative authority despite the argument that the owners of the surface were entitled to make use of its force to raise the oil from beneath the ground. Undoubtedly the legislature had in mind the Indiana statute and its construction, as well as others from other oil producing states. It would seem to logically follow that they made use of the word unreasonable for the very purpose of providing that the operators of a well might utilize a reasonable proportion of gas for the purpose of lifting the oil to the surface. This thought coincides with that indicated by the language we have already quoted to the effect that it shall be held to be an unreasonable waste of gas for one to produce gas in excess of "a reasonable proportion to the amount of oil produced," when such gas is not conveniently necessary for other than lifting purposes. When viewed in this light we think the word unreasonable is not so uncertain as to render the enactment

void and inoperative. In fact our courts have frequently [fol. 259] applied the rule of reasonable use between riparian owners where similar correlative rights are involved. We have already cited the case of Eckel v. Springfield Tunnel etc. Co. and Ex parte Elam, and to these we may add the following: Irrigation Dist. v. Mt. Shasta P. Corp., 202 Cal. 56, (259 Pac. 444); Turner v. The James Canal Co., 155 Cal. 82 (99 Pac. 520). In the latter of these two cases the words are so pertinent that they should be quoted. They are:

"Out of regard to the equal rights of others whose lands may abut upon the same water the law has declared, as will hereafter be more fully shown, that the use of the water for irrigation, so far as it affects the rights of others similarly situated, *must be reasonable,* and must be confined to a reasonable share thereof. But with this common limitation, the right to use water upon adjoining land applies as well to the water of a lake, pond, slough or any natural body of water, by whatever name it may be called, as to a running stream." (Italics ours.)

In a slightly different situation but still for the purpose of adjusting co-equal rights, the supreme court applied the same doctrine in Katz v. Walkinshaw, 141 Cal. 128, (74 Pac. 766), and in San Bernardino v. Riverside, 186 Cal. 25 (198 Pac. 784). In the former it said:

"The doctrine of *reasonable use,* on the other hand, af- [fol. 360] fords some measure of protection to property now existing, and greater justification for the attempt to make new developments. It limits the right of others to such amount of water as may be necessary for some usual purpose in connection with the land from which it is taken * * *. The objection that this rule of correlative rights will throw upon the court a duty impossible of performance, that of apportioning an insufficient supply of water among a large number of users, is largely conjectural."

In the latter we find these words:

"With regard to such land owners these cases hold that each owner of land overlying the same general underground supply of water may take such water on his own

land for any beneficial use thereon, so long as such taking works no *unreasonable injury to other land overlying such waters;* that if the natural supply is not sufficient for all such owners, each is entitled only to his *reasonable* proportion of the whole, and that each may apply to the courts to restrain an injurious and unreasonable taking by another and to have the respective rights adjudicated and the use regulated so as to prevent unnecessary injury and restrict each to his reasonable share." (Italics ours.)

These authorities set at rest the contention that the enactment is uncertain as well as the incidental assertion that [fol. 361] the legislature has by the language of the act and its failure to define a standard of conduct with greater rigidity, attempted to confer upon the court a legislative function. From them, as well as those cases such as Standard Oil Co. v. U. S., 221 U. S. 1 (55 L. Ed. 619), wherein the court announced and adopted the "rule of reason" holding that it was only those unreasonable restraints of trade which were intended to be curbed by the Sherman Anti-Trust Act, we find that the courts have for a considerable period of time been accustomed in *circumstances such as are concerned in the present enactment to apply the standard and guide of reason for the adjustment of those rights the unrestricted exercise of which would injuriously affect the rights of others.* In fact it is not a new rule in the domain of jurisprudence but a new adaptation of the old maxim: "*sic utere tuo ut alienum non laedas.*". (Italics ours.)

Sufficient has been said to effectually dispose of the remaining argument of petitioners and demonstrate that it is founded on a misconception of the legislative intent. Their argument is in effect that they are not producing an undue proportion of gas when the gas production is meas- [fol. 362] ured by the oil from one specific well. But this is obviously not the purpose of the law, as may clearly be indicated by a single illustration. Suppose a well is drilled and comes in, as what is commonly termed "a gasser", that is, a well which produces an insignificant quantity of oil. Conceivably such a well might drain the field of its supply of gas, leaving the oil therein unrecoverable, to the great and irreparable injury of the other surface owners. We

have instanced an extreme possibility, but our interpretation of the act is that it was intended to remedy a lesser but nevertheless unreasonable degree of waste of the same character.

Another answer to this argument of petitioners is that having determined that the court has the jurisdiction to determine what is an unreasonable waste, we cannot interfere by the writ of prohibition to deprive its judgment of effect. And we here direct attention to the determination of the respondent court that "there appears to be an unreasonable waste of natural gas in the Santa Fe Oil Field," and "that the evidence available * * * shows that the unreasonable waste of natural gas in said field may be substantially reduced and that the equities of all parties may be fairly conserved by a preliminary injunction which will [fol. 363] limit the waste of gas by restricting the production there-of to a quantity reasonably in excess of the present outlets for beneficial use above ground etc., etc.," It does not appear from the facts presented to us that insofar as the particular case before us is concerned the court exceeded its jurisdiction in finding as we have already quoted.

It is suggested in the briefs that the legislature is without authority to restrict the production of oil, and less we be misunderstood we deem it expedient to add that the record does not indicate that the temporary injunction was founded upon such a theory. Nor are we determining that the act attempts to confer upon the court any such power. Rather we are convinced that a proper construction of the enactment confines the authority within the limits of enjoining the production of gas when in excess of the reasonable proportion to the oil for the particular field involved, when not conveniently necessary for other than lifting purposes.

Writ of prohibition denied.

Ira F. Thompson, J.

We concur:

Works, P. J.; Craig, J.

[fol. 363a] In District Court of Appeal of California, Second Appellate District, Division Two

Civil. 7292

Bandini Petroleum Co. et al.

vs.

Superior Ct. L. A. et al.

Order Denying Writ of Prohibition—Nov. 29, 1930

Writ of prohibition denied.

Ira F. Thompson, J.

We concur:

Works, P. J.; Craig, J.

[fol. 363b] Due Dec. 27, 1930.
Opinion by Judge Thompson.
Reported 63 Cal. App. Dec. 1175.

In the District Court of Appeal, Second Appellate District, State of California, Division Two

——2nd Civil. No. 7292

Bandini Petroleum Company, a Corporation; Commodore Petroleum Company, a Corporation; Wilshire Oil Company, Inc., a Corporation; Wilshire Annex Oil Company, a Corporation, and Ambassador Petroleum Company, a Corporation, Petitioners,

vs.

The Superior Court of the State of California in and for the County of Los Angeles and Honorable William Hazlett, as One of the Judges Thereof, Respondents

Petition for Rehearing—Dated Dec. 27, 1930

Call & Murphey, by Robert B. Murphey and Asa V. Call, Pacific Mutual Bldg., 6th and Grand Ave., L. A., Attorneys for Petitioners.

By the Court:

Rehearing denied.

Works, P. J.

Dist. Court of Appeal, Second Dist. Filed Dec. 19, 1930. H. C. Lillie, Clerk. C. L. King, Deputy Clerk.

[fol. 364] Topical Index

Page

Introductory Statement 4

The Decision of the Supreme Court of California in People v. Associated Oil Company Filed December 3, 1930, Which Conflicts With the Opinion of This Court, Necessitates a Rehearing 7

The Facts and Record in This Case Are Materially Different From the Facts and Record in the Supersedeas Proceedings Entitled People v. Associated Oil Company, and the Situation of the Petitioners in This Case Is Also Materially Different 8

The Statute, as Construed by the Supreme Court and as Indicated by the Language of Section 8d of the Statute, Authorizes the Production of Gas From Each Oil Well in Quantities Not Exceeding a Reasonable Proportion to the Amount of Oil Produced From the Same Well, and Prohibits Only the Production of Gas From Such Oil Well in Excess of the Best Mean Gas and Oil Ratio for Such Well in the Utilization of the Lifting Power of the Gas in the Production of the Greatest Quantity of Oil 11

1. The Standard or Measure of "Unreasonable Waste of Natural Gas" Prescribed by the Statute as Construed by the Supreme Court of California Is the Best Mean Gas-Oil Ratio for Each [fol. 365] Well 11

2. The Standard or Measure of Unreasonable Waste of Natural Gas Prescribed by the Statute, as Construed in the Opinion of the Supreme Court in People v. Associated Oil Company, to-wit, the Production of Gas From Any Oil Well in Excess of the Best Mean Gas-Oil Ratio for Such Well in the Utilization of the Lifting Power of the Gas in the Production of the Greatest Quantity of Oil, Is Not Changed or Modified by Subsequent Statements in the Opinion 14

3. The Standard or Measure of Unreasonable Waste of Natural Gas Prescribed by the Statute, as Construed by the District Court of Appeal ... 31

Page

4. The Best Mean Gas-Oil Ratio for Each Particular well as Construed by the Supreme Court of California, Rather Than the Normal Gas-Oil Ratio for the Field as Stated in the Opinion of the District Court of Appeal, Is the Test or Standard of Unreasonable Waste of Gas Prescribed by the Statute 36

Since the Authority of the Superior Court Under the Statute Is Confined to Enjoining the Production of Natural Gas in Quantities Exceeding a Reasonable Proportion to the Amount of Oil Produced From the Same Well, and It Is Admitted by the Demurrer That the Uncontradicted Evidence in the Lower Court Shows That Petitioners Are Not [fol. 366] Producing More Gas From Any of Their Wells Than the Statute Thus Permits, It Follows That the Lower Court Exceeded Its Jurisdiction in Enjoining the Production of the Amount of Natural Gas Which the Statute Permits. The Order Is Otherwise Outside the Authority of the Court and in Violation and Contravention of Statutory and Constitutional Prohibitions. When a Court Is Violating the Express or Implied Mandate of a Statute or Constitution, or Has No Authority to Enter the Particular Order Rendered, It Is Acting in Excess of Its Jurisdiction, and Prohibition Is the Proper Remedy 51

The Effect of the Preliminary Injunction, as Originally Granted and as Modified, Is to Deprive Petitioners of Their Property for the Public Use Without Just Compensation, and Without Due Process of Law—Which the Superior Court, in no Event, Has Jurisdiction to do Without Eminent Domain Procedings having Been First Commenced, According to Law, and Just Compensation First Having Been Made to, or Paid Into Court for, Petitioners Respectively, Prohibition Is the Proper Remedy 64

Neither the Legislature Nor the Lower Court Can Compel All of the Operators in an Oil and Gas Field to Conserve Either the Oil or the Gas in the Field Which Is Owned by Them Collectively, for

Page

the Future Use and Benefit of the Citizens of the State, for Light, Heat, Fuel and Other Industrial [fol. 367] Purposes 70

Any Attempt to Construe the Statute as Requiring Not Only That Each Well Be Operated at Its Best Mean Gas-Oil Ratio but Also That Gas Production Be Further Limited According to the Present or Future Demands for Gas for Light, Heat, Fuel and Other Industrial Purposes by the General Public, Would Render the Statute Void for Uncertainty and Lack of a Sufficient Standard or Guide as to What Is Prohibited and What Is Permitted 88

To Construe the Statute so as to Deprive Any Operator or Operators of Sufficient Gas to Produce Oil at the Best Mean Gas-Oil Ratio for Each Individual Well, Based Upon Considerations of Present or Future Demands for Natural Gas for Light, Heat, Fuel and Other Industrial Purposes, or for the Purpose of Controlling the Supply of Oil and Regulating or Stabilizing the Price of Oil and Gasoline, Would Be Going Too Far Under the Police Power, and Would Make the Statute Arbitrary and Unreasonable, and Would Deny to Some Operators Having Less or no Market for Their Natural Gas the Equal Protection of the Laws... 92

The Rule of Property in California Is That the Surface Owner Has a Present Ownership of the Oil and Gas in Situ Under His Land as Long as It Remains in and Under His Land and Which He [fol. 368] Can Presently Convey as Such 98

The Provisions of the Act Providing That the Blowing, Release or Escape of Natural Gas Into the Air Shall Be Prima Facie Evidence of Unreasonable Waste, Violates the Requirements of the Federal and State Constitutions Guaranteeing the Due Process of Law 105

The Statute and Order Complained of Deprives Petitioners of the Equal Protection of the Laws and Grants Special Privileges and Immunities, in Violation of the Federal and State Constitutions. The

Page

Failure of the Court to Pass Upon This Proposition Justifies a Rehearing 106

The Construction of the Statute by the District Court of Appeal, to the Effect That an Operator of an Oil and Gas Well May Produce Gas Therefrom in Excess of the Reasonable Gas-Oil Ratio When the Excess Gas Produced Is Conveniently Necessary for Other Than Lifting Purposes, Is Incorrect and Renders the Statute Discriminatory. It Also Is Inconsistent With the Correlative Rights Theory 111

Each and All of the Points Heretofore Made by Petitioners in Their Former Briefs Are Hereby Again Made in This Petition, and Petitioners Respectfully Request a Reconsideration Thereof ... 115

[fol. 369] Table of Cases and Authorities Cited

Cases

Acme Oil & Mining Co. v. Williams, 140 Cal. 681 .. 100
Ambassador Petroleum Company v. Superior Court,
Baar v. Smith, 201 Cal. 87, 100 61
Bailey v. Drexel, 259 U. S. 20 87
Bodcam Lumber Company v. Good (Ark.), 254 S. W. 345 ..... 101, 102
Chandler v. Hart, 161 Cal. 405 102
City of San Bernardino v. Riverside, 186 Cal. 7 77
Cline v. Frink Dairy Company, 274 U. S. 445, 71 L. Ed. 445, 465 ..... 48, 91
Connolly v. General Construction Company, 271 U. S. 385, 70 L. Ed. 322 48
Eubank v. Richmond, 226 U. S. 137 ..... 83, 109, 110
Ex parte Elam, 6 Cal. App. 233 ..... 79, 80, 81
Ex parte Virginia, 100 U. S. 339, 346-347 67
Hague v. Wheeler, 157 Pa. St. 328 73
Herminghaus v. Southern California Edison Company, 200 Cal. 81 76
In re Application of Blanc, 81 Cal. App. 101, 113 .. 106
Jacobsen v. Superior Court, 192 Cal. 319, 321, 332 ..... 67, 68
Muller v. Oregon, 208 U. S. 412, 421 87
Ohio B. & Q. R. Co. v. Chicago, 166 U. S. 226, 41 L. Ed. 979, 983-984 67

Page

Ohio Oil Company v. Indiana, 177 U. S. 190 ..... 71, 73, 74, 79, 82, 93
[fol. 370] Palmer v. Railroad Commission, 167 Cal. 163 77
Pennsylvania v. W. Virginia, 262 U. S. 553, 67 L. Ed. 1017 84
People v. Associated Oil Co., 63 C. A. D. 1184 ..... 7, 13, 15, 18, 20, 21, 24, 29, 31, 33, 37, 40, 49, 52, 57, 72, 94, 105, 111
People v. Osaki, 79 Cal. Dec. 244 105
Schuster v. Superior Court, 59 C. A. D. 149, at 154 63
Scott v. McNeal, 154 U. S. 34 67
Stevens County v. Midland O. & G. Co., 118 Tex. 160, 254 S. W. 290 100
Stuart v. Palmer, 74 N. Y. 183 106
Terrace v. Thompson, 263 U. S. 197 92
Texas Co. v. Daugherty, 107 Tex. 234, 29 A. L. R. 587 103
Townsend v. State, 147 Ind. 624 73
Tyson & Bro. v. Banton, 273 U. S. 418, 71 L. Ed. 718 77
United States v. Pennsylvania R. R. Co., 342 U. S. 208 48
Weintraub v. Superior Court, 91 Cal. App. 763 62
West v. Kansas Natural Gas Co., 221 U. S. 229, 55 L. Ed. 716 ..... 69, 70
West v. Kansas Natural Gas Co., 221 U. S. 229, 55 L. Ed. 728 ..... 71, 75, 86
Williams v. Standard Oil Company, 49 U. S. Sup. Ct. Rep. 141 ..... 77, 94
Wolff Packing Co. v. Court of Industrial Relations, 262 U. S. 522, 67 L. Ed. 1103 78
Yick Wo v. Hopkins, 118 U. S. 356 108

[fol. 371] Authorities

29 A. L. R. 586 102
79 Cal. Dec. 64, 67 60
Civil Code, Section 1410 77
Civil Code, Secs. 3526, 3531, 3542 46
Federal Oil Conservation Board of May 27, 1926, at page 12 82

Page

Function of Natural Gas in the Production of Oil, Summary of the Technical Subcommittee in the Form of Question and Answer, from page 4 40
Statute of 1929, Section 21a 76
1 Thornton's Law of Oil and Gas, Paragraph 25a, page 95 ..... 104, 105, 111

[fol. 372] In District Court of Appeal of California, Second Appellate District, Division Two

[Title omitted]

Petition for Rehearing—Filed Dec. 19, 1930

Petitioners hereby respectfully petition this Honorable Court for a rehearing and re-examination of the statements of law and fact embodied in the opinion of this court filed November 29, 1930, which is reported at 63 C. A. D. 1175.

[fol. 373] Introductory Statement

Notwithstanding that petitioners appreciate the serious thought and arduous study which the opinion of this court evidences was given to the difficult problems presented by this case, petitioners respectfully and with due deference submit that a rehearing should be granted by this court, for the following general reasons, in addition to the particular reasons hereinafter set forth:

1. Because there appears to be a considerable divergence of opinion as to the questions of constitutional law, statutory construction, and the application of the law to the facts presented by the petition, and it is vitally important to petitioners and the entire oil industry of the State that they be correctly decided.

2. Because the opinion of this court is inconsistent in several material respects with the opinion of the Supreme Court of California filed on December 3, 1930, shortly after the decision of this court in the supersedeas proceedings entitled People v. Associated Oil Company et al., as to the constitutional questions presented, the construction of the

statute involved, and the application of the statute. Said decision of the Supreme Court has not become final, and is subject to a rehearing being granted after the time limit for this court to grant a rehearing in this proceeding.

[fol. 374] 3. Because the opinion of this court contains, and is based upon, a number of erroneous statements of fact which are not contained in but are contradicted by the record, and also ignores a number of admitted and uncontroverted facts contained in the record.

4. Because the order of the lower court is in conflict with the statute as construed by the Supreme Court of California and as also construed by this court.

5. Because, under the opinion of the Supreme Court, and the decisions heretofore cited by petitioners in their briefs, the effect of the paragraph numbered 3 of the order of the lower court is to deprive petitioners of their property without due process of law, and to take petitioners' property for a public use without just compensation, in violation of the Fourteenth Amendment of the Federal Constitution and of the corresponding provisions of the California Constitution.

6. Because the statute, as respondents may claim it was construed by the Supreme Court of California, is still so vague, indefinite and uncertain as to be devoid of a sufficient standard or test for determining what shall constitute waste of natural gas or unreasonable waste of natural gas or reasonable waste of natural gas, or what can or cannot [fols. 375-485] be done under the statute, and this is in violation of the due process clause of the Fourteenth Amendment of the Federal Constitution and the corresponding provisions of the California Constitution, as well as the provisions of the California Constitution prohibiting a court from exercising legislative functions.

7. Because the court failed to pass upon a number of material questions presented by petitioners entitling petitioners to the relief prayed for.

8. Because each of the points and propositions heretofore presented in the various briefs filed by petitioners is well taken and amply supported by authorities, and should be

carefully reconsidered. Any one of said propositions is sufficient to justify granting the relief prayed for.

9. Because the court's decision involves properties of the petitioners worth several million dollars and is of vital importance to, and will have a tremendous effect upon, other oil companies in a like situation engaged in the production of oil and gas in Santa Fe Springs and other oil fields throughout the state.

[fol. 486] IN DISTRICT COURT OF APPEAL OF CALIFORNIA, SECOND APPELLATE DISTRICT, DIVISION TWO

Civil. No. 7292

BANDINI PETROLEUM CO. et al.

vs.

SUPERIOR COURT, LOS ANGELES COUNTY, etc.

ORDER DENYING REHEARING—December 27, 1930

By the COURT:

Rehearing denied.

Works, P. J.

[fol. 486a] S. F. 13906. L. A. No. —

IN THE SUPREME COURT OF THE STATE OF CALIFORNIA

2nd Civil. No. 7292

BANDINI PETROLEUM COMPANY, a Corporation; COMMODORE Petroleum Company, a Corporation; Wilshire Oil Company, Inc., a Corporation; Wilshire Annex Oil Company, a Corporation; and Ambassador Petroleum Company, a Corporation, Petitioners,

vs.

THE SUPERIOR COURT OF THE STATE OF CALIFORNIA IN AND for the County of Los Angeles and Honorable William Hazlett, as One of the Judges Thereof, Respondents

PETITION FOR HEARING BY THE SUPREME COURT AFTER DECISION BY THE DISTRICT COURT OF APPEAL AND OPINION OF THAT COURT ATTACHED THERETO AS EXHIBIT "A"—Filed Jan. 8, 1931. B. Grant Taylor, Clerk, by Coullis, L. A. Deputy.

Call and Murphey, by Robert B. Murphey and Asa V. Call, Pacific Mutual Bldg., 6th and Grand Ave., L. A., Attorneys for Petitioners.

[fol. 487] Topical Index

	Page
Preliminary Statement	4
It Is Necessary for This Petition to Be Granted, Not Only (A) to Secure Uniformity of Decision but Also (B) in Order to Secure the Settlement of Important Questions of Law	5
A. Necessity of Uniformity of Decision	6
B. Important Legal Questions Necessary for This Court to Determine	8
Summary of Admitted Facts	12
Petitioners' Contentions	21
I	
The Statute, as Recently Construed by This Court and as Indicated by the Language of Section 8d Thereof, Authorizes the Production of Gas From Each Oil Well in Quantities Not Exceeding a Reasonable Proportion to the Amount of Oil Produced From the Same Well, and the Prohibition Against the Unreasonable Waste of Natural Gas Is Confined Within the Limits of Prohibiting the Production of Gas From Each Oil Well in Excess of That Produced by the Operation of Each Well at Its Optimum or Best Mean Gas-Oil Ratio for Such Well, in the Utilization of the Lifting Power of the Gas in the Production of the Greatest Quantity of Oil. Gas so Utilized in the Production of Oil Is Not Unreasonably Wasted, Although Thereafter Allowed to Escape for Lack of Any Further Present Available Use or Market Demand Therefor	22

Page

[fol. 488] 1. The Standard or Measure of "Unreasonable Waste of Natural Gas" Prescribed by the Statute as Construed by This Court Is the Best Mean Gas-Oil Ratio for Each Well 26

2. The Standard or Measure of Unreasonable Waste of Natural Gas Prescribed by the Statute, as Construed in the Opinion of This Court in People v. Associated Oil Company, to-wit, the Production of Gas From Any Oil Well in Excess of the Best Mean Gas-Oil Ratio for Such Well in the Utilization of the Lifting Power of the Gas in the Production of the Greatest Quantity of Oil, Is Not Changed or Modified by Subsequent Statements in the Opinion 31

3. The Standard or Measure of Unreasonable Waste of Natural Gas Prescribed by the Statute, as Construed by the District Court of Appeal Is the Normal or Reasonable Gas-Oil Ratio for the Field, Instead of the Best Mean Gas-Oil Ratio for Each Well .. 48

Gas, the Propulsive Force of Which Is Utilized in Efficiently Producing Oil at a Proper Gas-Oil Ratio, Is Not Unreasonably Wasted if Thereafter It Is Blown to the Air for Lack of Any Further Present Available Use or Market Demand Therefor .. 65

[fol. 489] II

Since the Authority of the Superior Court Under the Statute Is Confined to Enjoining the Production of Natural Gas in Quantities Exceeding a Reasonable Proportion to the Amount of Oil Produced From the Same Well, and It Is Admitted by the Demurrer That the Uncontradicted Evidence in the Lower Court Shows That Petitioners Are Not Producing More Gas From Any of Their Wells Than the Statute Thus Permits, or More Than What Would Be Permitted if the Standard Were a Normal or Reasonable Gas-Oil Ratio for the Field, It Follows That the Lower Court Exceeded Its Jurisdiction in Enjoining the Production of the Amount of Natural Gas Which the Statute Per-

Page

mits, in Violation of the Implied Mandate of the Statute. The Order Is Otherwise Outside the Authority of the Court and in Violation and Contravention of Statutory and Constitutional Prohibitions. When a Court Is Violating the Express or Implied Mandate of a Statute or Constitution, or Has no Authority to Enter the Particular Order Rendered, It Is Acting in Excess of Its Jurisdiction, and Prohibition Is the Proper Remedy 70

The Standard of This Court Is Repudiated by the District Court of Appeal 71

Each of Petitioners' Wells Is Admitted to Be Operating at Its Optimum or Best Mean Gas-Oil Ratio, Fixed by This Court as Test of Permitted Reasonable Waste 72

[fol. 490] Under the Admitted Facts, Each of Petitioners' Wells Is Not Only Operated at Its Best Mean Optimum Gas-Oil Ratio, but Also at a Ratio not Higher Than Is Reasonable in the Field, and Also so as Not to Involve "a Use Disproportionate to That of Others in the Field" 73

The Inference in the Opinion of the District Court of Appeal That the Lower Court Has, by the Quoted Recitals Therein Contained, Made a Finding That Petitioners Are Using Greater Quantities of Gas Than the Gas-Oil Ratio Standard Prescribed by the Statute Permits, Is Wholly Without Foundation 76

The Preliminary Injunction Is Otherwise Outside the Authority of the Court and in Violation and Contravention of Statutory and Constitutional Prohibitions 77

A Court Which Is Proceeding in Violation of the Express or Implied Mandate of the Statute, or Which Grants to or Takes Away From a Party Rights Which the Statute Impliedly Provides Shall Not Be Granted or Taken Away, Is Exceeding Its Jurisdiction, Even Though It Otherwise Has Jurisdiction of the Subject Matter and the Parties, and Prohibition Is the Proper Remedy. It Constitutes More Than Mere Error in the Exercise of Jurisdiction, for Under the Authorities the Court Is Exceeding Its Jurisdiction 82

Page

The Remedy by Appeal Would Be Neither Plain, Speedy Nor Adequate 94

[fol. 491] III

Under the Admitted Facts the Effect of the Preliminary Injunction, as Originally Granted and as Modified, Is Also to Deprive Petitioners of Their Property for the Public Use Without Just Compensation, and Without Due Process of Law—Which the Superior Court, in No Event, Has Jurisdiction to do Without Eminent Domain Proceedings Having Been First Commenced, According to Law, and Just Compensation First Having Been Made to, or Paid Into Court for, Petitioners Respectively. Prohibition Is the Proper Remedy .. 96

Neither the Legislature Nor the Lower Court Can Deprive Petitioners of the Gas Required to Operate Their Oil Wells at an Efficient and Lawful Gas and Oil Ratio for the Sole Purpose of Reserving Same for the Future Use and Benefit of Public Utility Companies or the Citizens of the State, for Light, Heat, Fuel and Other Industrial Purposes, Except Through Eminent Domain Proceedings With Just Compensation Therefor to Such Owners 100

A Court Has no Jurisdiction to Grant an Injunction Which Has the Effect of Depriving a Party of Its Property for Public Use Without Eminent Domain Proceedings and Just Compensation, and Prohibition Is the Proper Remedy to Prevent the Enforcement Thereof 118

The Remedy by Appeal Would Be Neither Plain, Speedy Nor Adequate 122

[fol. 492] IV

Under the Admitted Facts the Residual Gas Blown to the Air by Petitioners Is Not Unreasonably Wasted, or in Violation of the Statute 127

V

The Statute Is Void for Uncertainty and Lack of a Sufficiently Definite Standard or Measure of Con-

Page

duct for a Valid Legislative Enactment. The Statute and Its Enforcement by the Lower Court, Therefore, Deprives Petitioners of Their Liberty and Property Without "Due Process of Law," Guaranteed by the Fourteenth Amendment of the U. S. Constitution, and Also Violates the California Constitution Prohibiting the Delegation of Legislative Power to the Courts. The Lower Court Therefore Exceeded Its Jurisdiction and Prohibition Is the Proper Remedy..... 125

VI

The Statute as Construed and Applied by the Order of the Lower Court Deprives Petitioners of Their Property Without "Due Process of Law" and Without "Just Compensation," in Violation of the Guarantees of the Fifth and Fourteenth Amendments of the United States Constitution and the Corresponding Provisions of the California Constitution, the Protection of Which Are Hereby Invoked. The Court, Therefore, Exceeded Its Jurisdiction, and Prohibition Is the Proper Remedy... 128

[fol. 493]

VII

The Provisions of the Statute Providing That the Blowing, Release or Escape of Natural Gas Into the Air Shall Be Prima Facie Evidence of Unreasonable Waste, Applied and Enforced by the Lower Court, Deprives Petitioners of Their Liberty and Property Without Due Process of Law, in Violation of the Fourteenth Amendment of the United States Constitution, the Protection of Which Petitioners Hereby Invoke..... 129

VIII

The Statute and Order Complained of Denies to Petitioners the Equal Protection of the Laws in Violation of the Fourteenth Amendment of the U. S. Constitutions; the Failure of the District Court of Immunities, in Violation of the Federal and State Constitutions; the Failure of the Distrct Court of

Page

Appeal to Pass Upon This Proposition Justifies a Hearing by This Court 130

IX

The Statute and Order Impair the Obligations of the Various Lease Contracts of Petitioners Which Require Diligent Drilling and Operating in the Production of Oil and Gas, and Therefore They Violate the Guarantees of Section 10 of Article I of the California Constitution and the "Due Process of Law" Provision of the Fourteenth Amendment of the United States Constitution, the Protection of Which Petitioners Hereby Invoke 140

[fol. 494] X

The Construction of the Statute by the District Court of Appeal, to the Effect That an Operator of an Oil and Gas Well May Produce Gas Therefrom in Excess of the Reasonable Gas-Oil Ratio When the Excess Gas Produced Is Conveniently Necessary for Other Than Lifting Purposes, Is Incorrect and Renders the Statute Discriminatory. It Also Is Inconsistent With the Correlative Rights Theory 142

XI

Each and All of the Points Heretofore Made by Petitioners in Their Former Briefs Are Hereby Again Made in This Petition, and Petitioners Respectfully Request a Reconsideration Thereof 145

Opinion of the District Court of Appeal. Appendix A 1

[fol. 495] Table of Cases and Authorities Cited

Cases

Page

Ambassador Petroleum Company v. Superior Court, 208 Cal. 667 29

Ambassador Petroleum Company v. Superior Court, 208 Cal. 667, 671 ..... 83, 84

Ash v. Superior Court, 33 Cal. App. 800 83

Page

Associated etc. Co. v. Railroad Commission, 176 Cal. 518, 528-529 69
Baar v. Smith, 201 Cal. 87 ..... 84, 86, 87, 88
Bailey v. Drexel, 259 U. S. 20 116
Boone v. Kingsbury, 77 Cal. Dec. 94, p. 115 30
Carpenter v. Superior Court, 75 Cal. 596, 597, 598 83
Carter v. Superior Court, 176 Cal. 752 83
City of San Bernardino v. Riverside, 186 Cal. 7 108
Cline v. Frink Dairy Co., 71 L. Ed. 464-5 ..... 64, 127
Connolly v. General Construction Company, 271 U. S. 385, 70 L. Ed. 322 63
Cotting v. Godard, 183 U. S. 79 139
Dailey v. Superior Court, 112 Cal. 94 120
Eisenberg v. Superior Court, 193 Cal. 575, 582-583 83
Elberto Oil Company v. Superior Court, 74 Cal. App. 114, 122-123 (on all fours) 95
Eubank v. Richmond, 226 U. S. 137 ..... 131, 134, 135
Ex parte Virginia, 100 U. S. 339, 346-347 98
Foster Fountain Packing Co. v. Haydel, 73 L. Ed. 1, 3-5 115
Glide v. Superior Court, 147 Cal. 21, 28 83
[fol. 496] Hague v. Wheeler, 157 Pa. St. 326 105
Hall v. Superior Court, 198 Cal. 373 83
Haskell v. Kansas Natural Gas Company, 224 U. S. 218 106
Havemeyer v. Superior Court, 84 Cal. 327, 331 94
Hayes v. Missouri, 120 U. S. 68 139
Hayne v. Justice's Court, 82 Cal. 284 ..... 83, 84
Herminghaus v. Southern California Edison Company, 200 Cal. 81, 107-108 69
Heminghaus v. Southern California Edison Company, 200 Cal. 81 107
Huntington v. Superior Court, 5 Cal. App. 288, 295 83
In re Application of Blanc, 81 Cal. App. 101, 113 130
Jacobsen v. Superior Court, 192 Cal. 319, 331 ..... 95, 98, 118, 122
Jacobsen v. Superior Court, 192 Cal. 319, p. 330 ..... 20, 60, 83, 90, 91
Lindsey v. Natural Carbonic Gas Co., 222 U. S. 61 112
Long v. Superior Court, 102 Cal. 449 ..... 84, 89
McDowell v. Bell, 86 Cal. 615, 616 83
McFarland v. Amer. Sugar R. Co., 241 U. S. 79 139

Page

Muller v. Oregon, 208 U. S. 412, 421 116
Nason v. Superior Court, 39 Cal. App. 448, 452 83
North Bloomfield G. M. Co. v. Keyser, 58 Cal. 315, 322, 324 83
Northcutt v. Superior Court, 66 Cal. App. 350 83
Northcutt v. Superior Court, 66 Cal. App. 350, 356 .. 95
[fol. 497] Ohio B. & Q. R. Co. v. Chicago, 166 U. S. 226, 41 L. Ed. 979, 983-984 ..... 98, 120
Ohio Oil Company v. Indiana, 49 N. E. 809 103
Ohio Oil Company v. Indiana, 177 U. S. 190 ..... 101, 111
Ophir Silver Mine Co. v. Superior Court, 147 Cal. 467, 479 95
Palmer v. Railroad Commission, 167 Cal. 163 108
Penna. Coal Co. v. Mahan, supra (260 U. S. 393) 111
People v. Associated Oil Company, 80 Cal. Dec. 607 4, 6, 7, 16, 21, 22, 26, 32, 34, 35, 37, 38, 39, 41, 42, 53, 54, 65, 66, 71, 78, 129, 146
People v. Osaki, 79 Cal. Dec. 244 129
Reclamation District v. Superior Court, 171 Cal. 672, 681 83
Reclamation District v. Superior Court, 171 Col. 672, 683 95
Scott v. McNeal, 154 U. S. 34 98
Southern Railway Co. v. Green, 216 U. S. 400 140
Stuart v. Palmer, 74 N. Y. 183 131
Tonningsen v. Odd Fellows' Cem. Assn., 60 Cal. App. 568, 571-572 ..... 84, 85
Truax v. Corrigan, 257 U. S. 312 139
Tyson & Bro. v. Banton, 273 U. S. 418, 71 L. Ed. 718 109
United R. R. v. Superior Court, 170 Cal. 755, 760-761 83
United States v. Pennsylvania R. R. Co., 342 U. S. 208 63
[fol. 498] Walls v. Midland Carbon Company, 65 L. Ed. 276 106
Weintraub v. Superior Court, 91 Cal. App. 763, 769 .. 83, 92
West v. Kansas Natural Gas Co., 221 U. S. 229, 55 L. Ed. 716 ..... 100, 116
West v. Kansas Natural Gas Co., 221 U. S. 229, 55 L. Ed. 728 101
Williams v. Standard Oil Company, 49 Sup. Ct. Rep. 141 108

Page

Wolff Packing Co. v. Court of Industrial Relations, 262 U. S. 522, 67 L. Ed. 1103 110
Wright v. Superior Court, 139 Cal. 469 83
Yick Wo. v. Hopkins, 118 U. S. 356 ..... 132, 139

Authorities

21 Cal. Jur. 581, 583 94
63 C. A. D. 1175 3
63 C. A. D. 1182, 1186 ..... 6, 49, 51, 66
63 C. A. D. 1185 ..... 7, 50, 71, 72
Civil Code, Sections 3526, 3531, 3542 62
Report III Federal Oil Conservation Board, February 25, 1929, p. 23 52
Report U. S. Bureau of Mines and American Petroleum Institute, p. 4 55
Statute of 1929, Section 21a 108
Statute, Sections 8b, 8d, 9 ..... 57, 58, 135
Statute, Section 14b 59, 60

[fol. 499] In Supreme Court of California

Bandini Petroleum Company, a Corporation; Commodore Petroleum Company, a Corporation; Wilshire Oil Company, Inc., a Corporation; Wilshire Annex Oil Company, a Corporation, and Ambassador Petroleum Company, a Corporation, Petitioners,

vs.

The Superior Court of the State of California in and for the County of Los Angeles and Honorable William Hazlett, as One of the Judges Thereof, Respondents

Petition for Transfer and Hearing—Filed Jan. 8, 1931

Petitioners respectfully and earnestly petition this Honorable Court for a transfer and a hearing of the prohibition proceedings heretofore pending in the District Court of Appeal, Second Appellate District, Second Division, determined by the decision of that court filed November 29, 1930, and reported at 63 C. A. D. 1175. A copy of the opinion of the District Court of Appeal showing the

[fol. 500] date of filing thereof accompanies this petition. A timely petition for a rehearing of said matter in said District Court of Appeal has been denied.

Preliminary Statement

The record and the admitted facts of this case are widely and materially different from those involved in the case of People v. Associated Oil Company, 80 Cal. Dec. 607.

In the case at bar the return of the respondent consists solely of a demurrer to the petition for writ of prohibition; thus, all of the facts alleged in the petition are, for the purposes of this proceeding, admitted to be true. These admitted facts as hereinafter set forth disclose that there is very little similarity between the facts of the two cases. So this case is not controlled by the recent decision of this court.

In a nut-shell, it appears from the admitted facts in the record not only that each of the petitioners' wells is operating at its optimum or best mean gas and oil ratio, but also that each well is operating at a reasonable gas-oil ratio for the field, being amongst the lowest in the field, and hence that none of their wells are in any sense "wasters". So petitioners are thus admittedly complying with the stand-
[fol. 501] ard or measure of unreasonable waste prescribed by the statute as construed by this court, but also with the standards set forth in the opinion of the District Court of Appeal.

Notwithstanding this, paragraph numbered 3 of the order of the lower court deprives petitioners of more than half of the gas required to operate their wells at a proper gas-oil ratio in accordance with the standard or measure established in both opinions, and requires the shutting down and killing of a great number of their wells, each admittedly operating at a lawful gas-oil ratio. Petitioners are admittedly deprived of this gas for the sole purpose of "conserving such natural gas for the benefit of the general public" (p. 23). This is in direct violation of the statute, and also constitutes a taking of petitioners' property without due process of law, and without just compensation, contrary to the 5th and 14th Amendments to the U. S. Constitution.

It is necessary for this petition to be granted, not only (A) to secure uniformity of decision, but also (B) in order to secure the settlement of important questions of law.

The grounds upon which such necessity is claimed to exist are:

[fol. 502] A. Necessity of Uniformity of Decision

The decision of the District Court of Appeal is not consistent with the recent opinion of this court in People v. Associated Oil Company, 80 Cal. Dec. 607, but is in direct conflict therewith in a number of material respects:

First. The two opinions are in direct conflict as to the construction of the statute involved, in this:

(a) The standard or measure of "unreasonable waste of natural gas" prescribed by the statute as construed by this court is the "best mean gas-oil ratio" for each well (80 Cal. Dec. 615), whereas the standard prescribed by the statute as construed by the District Court of Appeal is the "normal" or reasonable "proportion of gas to oil for the field" (63 C. A. D. 1182). Under the admitted facts of this case petitioners are complying with the statute, measured by both or either standard.

(b) Under the standard of the statute as construed by the District Court of Appeal a producer is entitled to produce gas in excess of the proper gas-oil ratio when the excess gas so produced is "conveniently necessary for the generation of light, heat, power or other industrial purpose" (63 C. A. D. 1182, 1186). No such factor appears in the standard prescribed by the statute as construed by [fol. 503] this court. Under the admitted facts, petitioners are not violating the statute if this factor is also to be considered.

Second. The two opinions are in direct conflict as to the scope of the power of the Legislature under the state and federal constitutions, in this, that under the opinion of the District Court of Appeal "the legislative power of the state may be exercised for the purpose of adjusting co-existing rights" of the surface owners over oil and gas de-

posits, but that "there is grave doubt" whether the state may restrict or regulate the production of oil or gas on the theory of the public's interest in privately owned natural resources (63 C. A. D. 1180), whereas in the said recent decision of this court the legislative power exists not only to regulate co-existing rights of the surface owners but also upon the theory that "the public has a sufficient interest in the preservation of oil and gas to justify legislation to prevent waste thereof" (80 C. D. 611, 613).

Third. The two opinions are in direct conflict as to the application of the statute, in this, that under the decision of the District Court of Appeal the fact that petitioners were admittedly "not producing an undue proportion of gas when the gas production is measured by the oil from one specific well" (63 C. A. D. 1185), was held to be immaterial, whereas under the opinion of this court such admitted fact [fol. 504] is of paramount importance, in that it established that petitioners were operating each of their wells exactly in accordance with the standard of the statute as construed by this court, to-wit, that they are operating each oil and gas well at its "best mean gas and oil ratio in the utilization of the lifting power of the gas and the production of the greatest quantity of oil to the proportion of gas so utilized" (80 C. D. 615). As already stated, measured by both or either tests, under the admitted facts petitioners are not violating the statute.

Uniformity of decision by the elimination of these inconsistencies can only be accomplished through a hearing and determination of this case by this court. In addition to this there are:

B. Important Legal Questions Necessary for This Court to Determine

First. It is of the utmost importance to the entire oil industry of the state that the measure or test of unreasonable waste of natural gas be at once set at rest by this court. It is generally recognized by all attorneys who have considered the recent opinion of this court in People v. Associated Oil Company, 80 Cal. Dec. 607, that it needs clarification. This is particularly true because it is being [fol. 505] so misconstrued and distorted by opposing coun-

sel and the officials charged with the enforcement of the statute as to make the construction of the statute involved as uncertain and unsettled as ever in determining the proper standard or measure of "unreasonable waste of natural gas" to be applied.

Second. Is there some other or additional standard or test to be used in determining whether there is an "unreasonable waste of natural gas" in any particular case, other than the best mean gas-oil ratio for each well in the utilization of the lifting power of the gas in the production of oil, which this court repeatedly and unqualifiedly stated was the measure or test in its said recent opinion? We claim there is not. But opposing counsel, seizing upon certain isolated statements in the opinion, claims that under said opinion the statutory prohibition against "unreasonable waste of natural gas," in addition to requiring the operation of each well at its optimum or best mean gas-oil ratio, requires also: (1) that each well be so operated as not to produce a higher gas-oil ratio than a reasonable gas-oil ratio for the field, even though this may require wells, each operated at its best mean gas-oil ratio, to be killed, and (2) that the amount of gas required to produce oil at the best mean gas-oil ratio of each well cannot be produced if it results in blowing to the air an unreasonable [fol. 506] quantity of gas so utilized, after the gasoline has been removed therefrom, because there is no market for the gas so blown to the air, and even though this requires wells operated at a proper gas-oil ratio to be killed. (Reply to Petition for Rehearing in District Court of Appeal, p. 27.)

Third. If, in addition to the best mean gas-oil ratio of each well, there are any other standards or tests to be applied, such as those contended for by opposing counsel, how can the same be ascertained? What is the basis and limits of each? What are the factors to be considered in each, and the weight of each factor? What is the relative weight and importance to be attached to each standard? Does not such construction introduce economic factors and render it void for uncertainty and lack of a sufficiently definite guide or criterion as to what is lawful and what is unlawful within the purview of the "due process" clauses of the Federal

and State Constitutions, and the limitations in the State Constitution prohibiting the delegation of legislative power to the executive or judicial branches of the government? Does not this make the lower court's order in excess of its jurisdiction?

Fourth. In view of the fact that the demurrer admits that each of petitioners' wells is operated at its best mean [fol. 507] gas-oil ratio (Petition, pp. 7, 8, 12), "and is so operated that it does not injuriously affect the operations of others owning and/or operating wells in said field" and "that the gas-oil ratio of the wells of petitioners is the third lowest amongst the nine largest producers of oil in said Santa Fe Springs oil field" (p. 12) so that petitioners admittedly are not violating the standard of the statute as construed either by this court or the District Court of Appeal,—has the Superior Court jurisdiction to further greatly curtail production of gas by petitioners so as to limit their gas production to less than one-half of the gas admittedly required to operate each of its wells at its best mean gas-oil ratio and so as to require the killing or shutting in of many wells lawfully operated at proper gas-oil ratios, for the admitted sole "purpose of conserving such natural gas for the benefit of the general public"?

Fifth. Does not paragraph numbered 3 of the preliminary injunction, under the circumstances mentioned in the preceding paragraph, constitute not only a violation of the statute but a setting up by the lower court of an arbitrary standard of its own, based solely upon market demands for the gas produced from this field, in excess of the jurisdiction of the court, in that it prohibits what the statute permits?

[fols. 508-670] Sixth. Does not paragraph numbered 3 of the preliminary injunction, under the circumstances mentioned in paragraph "Fourth", also constitute a deprivation of petitioners' property and property rights, in violation of the "due process" and "just compensation" clauses of the Federal and State Constitutions, and an excess of jurisdiction of the lower court?

Seventh. Does not the construction of the statute contended for by opposing counsel and as applied by the lower

court, render the statute in conflict with the United States Constitution, the protection of which petitioners hereby invoke, (1) in that it denies petitioners the "equal protection of the laws," and is discriminatory; (2) in that it goes too far under the local conditions existing in California, (3) in that it requires the exercise of the power of eminent domain, (4) in that it deprives petitioners of their liberty and property without "due process" of law, and (5) in that it "impairs the obligations" of petitioners' lease contracts requiring diligent drilling? If so, is not the enforcement of this construction by the lower court order in excess of the jurisdiction of that court?

[fols. 671 & 671a] I, B. Grant Taylor, Clerk of the Supreme Court of the State of California, do hereby certify that the preceding and annexed is a true and correct copy of petition for hearing filed January 8th, 1931, as shown by the records of my office.

Witness my hand and the seal of the Court this 19th day of March, A. D. 193-.

B. Grant Taylor, Clerk, by S. Erb, Chief Deputy.
(Seal Supreme Court of California.)

[fol. 671b] IN SUPREME COURT OF CALIFORNIA

In Bank

S. F. No. 13906. 2 Civ. No. 7292

BANDINI PETROLEUM CO. et al.

vs.

SUPERIOR COURT, LOS ANGELES COUNTY.

ORDER DENYING PETITION FOR HEARING—Filed Jan. 26, 1931

By the COURT:

The petitioners petition to have the above entitled cause heard and determined by this Court after judgment in the

District Court of Appeal of the Second Appellate District, Division Two, is denied.

Dated this 26th day of January, 1931.

Waste, C. J.

I, B. Grant Taylor, Clerk of the Supreme Court of the State of California, do hereby certify that the preceding is a true copy of an order of this Court, as shown by the records of my office.

Witness my hand and the seal of the Court this 19th day of March, A. D. 1931.

B. Grant Taylor, Clerk, by S. Erb, Chief Deputy Clerk. (Seal Supreme Court of California.)

[File endorsement omitted.]

[fol. 672] In District Court of Appeal of California

[Title omitted]

Petition for Appeal, Request for Supersedeas, Assignment of Errors, and Prayer for Reversal—Filed Feb. 13, 1931

Petition for Appeal

1. Considering themselves aggrieved by the decision and judgment of the District Court of Appeal, Second Appellate District, Second Division, of the State of California, filed November 29, 1930, denying petitioner a peremptory writ of mandate directed to the Superior Court of the State of California, in and for the County of Los Angeles, and to Honorable William Hazlett, as one of the judges thereof, as prayed for and as set forth in the alternative writ of [fol. 673] prohibition theretofore issued by said court, in which prohibition proceedings a timely petition for a rehearing of said decision and judgment was denied by said court on December 27, 1930, and a timely petition for a transfer and hearing of said suit and said decision by the Supreme Court of California was denied by said court on January 26, 1931, and said decision and judgment being a final judgment in the said suit in the highest court of the state in which a decision of the suit can be had,—the peti-

tioners Bandini Petroleum Company, a corporation, Commodore Petroleum Company, a corporation, Wilshire Oil Company, Inc., a corporation, Wilshire Annex Oil Company, a corporation, and Ambassador Petroleum Company, a corporation, hereby pray that an appeal be allowed to the Supreme Court of the United States from the said final judgment, and petitioners desiring the appeal to be a supersedeas, pray an order touching the security to be required of them and the approval of such bond as required in this case.

2. Petitioners respectfully show by this petition and the assignment of errors hereinafter set forth that in the records and proceedings in said suit there was drawn in [fol. 674] question the validity of a statute of the State of California on the ground of its being repugnant to section 10 of Article I and the Fourteenth Article of the Amendments of the United States Constitution, and the final decision in the suit is in favor of the validity of such statute. The said statute of the State of California the validity of which was so drawn in question is entitled, as amended, "An Act to protect the natural resources of petroleum and gas from waste and destruction; relating to the creation of a division in the department of natural resources for the prevention of such waste and destruction; providing for the appointment of a state oil and gas supervisor; prescribing his duties and powers; fixing his compensation; providing for the appointment of deputies and employees; providing for their duties and compensation; providing for the inspection of petroleum and gas wells; requiring all persons operating petroleum and gas wells to make certain reports; permitting and authorizing agreements in the interests of conservation; providing for suits by the director of the department of natural resources in the name of the people of the State of California; providing procedure for arbitration of departmental rulings; creating a fund for the purposes of the act; providing for assessment of [fol. 675] charges to be paid by operators and providing for the collection thereof; and making an appropriation for the purposes of this act". The particular sections of said statute as amended the validity of which is drawn in question are sections 8b, 8d, 9, 14a and 14b. The said statute with its various amendments consists of chapter 718, Stat-

utes of California for 1915, as amended by chapter 759, Statutes of California for 1917, as amended by chapter 536, Statutes of California for 1919, as amended by chapter 912, Statutes of California for 1921, as amended by chapter 535, Statutes of California for 1929.

3. And likewise in said cause, as appears from the assignment of errors hereinafter set forth and in the records and proceedings in said suit, there were drawn in question rights, privileges and immunities arising under section 10 of Article I, and Article Fourteenth of the Amendments, of the United States Constitution which were specially set up and claimed by your petitioners, and the said final judgment of the highest court in the State of California in which a decision thereof can be had is against and denies such rights and privileges and immunities so specially set up and claimed.

[fol. 676] ASSIGNMENT OF ERRORS

Said appellants and each of them assign the following errors in the record and proceedings in the said suit:

1. The District Court of Appeal, Second Appellate District, Second Division, of the State of California, erred in holding that the said statute of California as amended as aforesaid prohibiting "the unreasonable waste of natural gas" is not void for uncertainity and lack of a standard or a sufficiently definite standard to satisfy the "due process" clause of the Fourteenth Amendment of the United States Constitution, and in holding that what constitutes unreasonable waste of natural gas is, by section 14b of the said statute as amended, properly determinable by judgment or order of the Superior Court of the State of Cafifornia.

2. The District Court of Appeal, Second Appellate District, Second Division, of the State of California, erred in holding that the said statute as amended is a proper exercise of the police power and does not require the exercise of the power of eminent domain as provided by the Fourteenth Amendment of the United States Constitution.

3. The District Court of Appeal, Second Appellate District, Second Division, of the State of California, erred in

holding that the said statute as amended, and as applied [fol. 677] and enforced in the preliminary injunction as originally made and as modified, referred to and involved in said decision and judgment of said District Court of Appeal, does not deprive petitioners and each of them of their liberty without "due process of law" as required by the Fourteenth Amendment to the United States Constitution.

4. The District Court of Appeal, Second Appellate District, Second Division, of the State of California, erred in holding that the said statute as amended, and as applied and enforced in the preliminary injunction as originally made and as modified, referred to and involved in said decision and judgment of said District Court of Appeal, does not take the property of petitioners and each of them, for a public use without just compensation, in violation of the rights secured to each of petitioners by the "due process" clause of the Fourteenth Amendment of the Constitution of the United States.

5. The said District Court of Appeal, erred in holding in effect that the taking of petitioners' property as alleged in the petition for writ of prohibition filed in said court is a public use, and that the rights of petitioners under the [fol. 678] "due process" clause of the Fourteenth Amendment of the United States Constitution are not violated by the making or enforcement against petitioners or any of them of the preliminary injunction as originally granted or as modified.

6. The District Court of Appeal, Second Appellate District, Second Division, of the State of California, erred in holding that the said statute as amended, and as applied and enforced in the preliminary injunction as originally made and as modified, referred to and involved in said decision and judgment of said District Court of Appeal of California, does not impair the obligations of the oil and gas lease contracts of the petitioners, and is not in violation of Section 10 of Article I of the United States Constitution.

7. The District Court of Appeal, Second Appellate District *District,* Second Division, of the State of California,

erred in holding that the said statute as amended and as attempted to be enforced against petitioners does not deny to petitioners the equal protection of the laws and is not in violation of rights of petitioners respectively secured by the "equal protection of the Laws" clause of the Fourteenth Amendment to the United States Constitution.

[fol. 679] 8. The District Court of Appeal, Second Appellate District, Second Division, of the State of California, erred in holding and deciding that the preliminary injunction of the Superior Court in and for the County of Los Angeles made on March 19, 1930, and as modified on March 28, 1930, and the enforcement thereof against petitioners, is not in excess of the jurisdiction of said Superior Court. In so holding, the said District Court of Appeal has, in effect, held that the said statute prohibiting the "unreasonable waste of natural gas" is not void for uncertainty and lack of a standard or a sufficiently definite standard as to what is prohibited and what is permitted to satisfy the due process clause of the Fourteenth Amendment to the United States Constitution.

9. The District Court of Appeal, Second Appellate District, Second Division, of the State of California, erred in holding and deciding that the preliminary injunction of the Superior Court in and for the County of Los Angeles made on March 19, 1930, and as modified on March 28, 1930, and the enforcement thereof against petitioners, is not in excess of the jurisdiction of said Superior Court. In so holding, the said District Court of Appeal has, in effect, held that, even though under the admitted and uncontra-[fol. 680] dicted facts petitioners' wells are operated in accordance with the standard prescribed by the said statute as construed by said court, namely, so as not to produce gas from any oil and gas well in quantities exceeding a reasonable proportion to the amount of oil produced from such well, measured by what is a normal proportion of gas to oil in the particular field,—the Superior Court, unguided and uncontrolled by anything in the statute, may, nevertheless, ignore this standard and apply a standard of its own based solely upon the present market demands for gas from the field for light, heat, fuel and other industrial purposes, and that this is not in violation of the due pro-

cess clause of the Fourteenth Amendment to the United States Constitution.

10. The District Court of Appeal, Second Appellate District, Second Division, of the State of California, erred in holding and deciding that the preliminary injunction of the Superior Court in and for the County of Los Angeles made on March 19, 1930, and as modified on March 28, 1930, and the enforcement thereof against petitioners, is not in excess of the jurisdiction of said Superior Court. In so holding, said District Court of Appeal, has, in effect, held that. even though each of petitioners' oil and gas wells [fol. 681] are efficiently operated in accordance with the standard prescribed by the statute, the Superior Court has jurisdiction under the statute to prohibit the production by petitioners of more than one-half of the gas required to be utilized by petitioners in producing oil in accordance with such standard, for the admitted sole purpose of conserving such natural gas for the benefit of the general public, without first commencing eminent domain proceedings according to law in a court of competent jurisdiction and without just, or any, compensation being made to or paid into court for petitioners, and that this does not constitute a violation of the guarantees of the Fourteenth Amendment of the United States Constitution providing that no state shall deprive any person of life, liberty or property without due process of law.

11. The District Court of Appeal, Second Appellate District, Second Division, of the State of California, erred in holding and deciding that the preliminary injunction of the Superior Court in and for the County of Los Angeles made on March 19, 1930, and as modified on March 28, 1930, and the enforcement thereof against petitioners, is not in excess of the jurisdiction of said Superior Court. In so [fol. 682] holding, the said District Court of Appeal, has, in effect, erroneously held that under the statute petitioners can be deprived of the propulsive force of sufficient gas required to operate their oil and gas wells efficiently and at the best or optimum gas-oil ratio for each well and at a gas-oil ratio which does not exceed what is normal or reasonable for the field and so as not to injuriously affect the rights or operations of other owners and/or operators in

the same field, solely for the purpose of conserving or reserving such natural gas for the future use and benefit of the general consuming public for light, heat, fuel and other industrial purposes, and that this does not constitute a violation of the rights secured to each of petitioners by the "due process" clause of the Fourteenth Amendment of the United States Constitution.

12. The District Court of Appeal, Second Appellate District, Second Division, of the State of California, erred in holding and deciding that the preliminary injunction of the Superior Court in and for the County of Los Angeles made on March 19, 1930, and as modified on March 28, 1930, and the enforcement thereof against petitioners, is not in excess of the jurisdiction of said Superior Court. In so [fol. 683] holding, the said District Court of Appeal has, in effect, erroneously held that the legislature, by defining as unreasonable waste of natural gas the highly beneficial and necessary use of natural gas in producing oil so as not to injuriously affect the rights of other owners and/or operators in the same field, can thereby deprive petitioners of the use of sufficient natural gas to efficiently produce oil on lands owned and/or leased by petitioners respectively and useful and valuable for such purpose, and that petitioners are not thereby deprived of their respective liberty and property without due process of law as guaranteed by the Fourteenth Amendment of the United States Constitution.

13. The District Court of Appeal, Second Appellate District, Second Division, of the State of California, erred in holding and deciding that the provisions of section 8b of the said statute as amended, to the effect that the blowing, release or escape of natural gas into the air shall be prima facie evidence of unreasonable waste of natural gas, is valid, and that the application thereof to petitioners does not violate the guarantees of the Fourteenth Amendment of the United States Constitution providing that no state shall [fol. 684] deprive any person of liberty or property without due process of law.

14. The District Court of Appeal, Second Appellate District, Second Division, of the State of California, erred in upholding the validity of said statute as amended and the

attempted application thereof to petitioners, in that the real purpose of the statute as amended, and the attempted enforcement thereof, and the effect thereof, is to regulate and control the amount of oil production and thus regulate and control the price of oil; that the business of producing oil and gas is not a business affected with a public interest; and the statute as amended and as attempted to be applied to petitioners is in violation of the Fourteenth Amendmen of the United States Constitution and of the rights of petitioners thereunder, in that it deprives petitioners of their liberty and property without due process of law.

15. The District Court of Appeal, Second Appellate District, Second Division, of the State of California, erred, in that the natural gas produced by petitioners, when severed from oil and in the exclusive possession of the petitioners on the surface, is owned absolutely by petitioners, and the statute as amended and as applied to petitioners in effect [fol. 685] deprives petitioners of their *of their* ownership and use of such natural gas and deprives petitioners of their liberty and property without due process of law, in violation of the Fourteenth Amendment of the United States Constitution.

[fol. 686] NECESSITY FOR SUPERSEDEAS

The reasons why the application for supersedeas herein requested should be granted and the appeal made to operate as a supersedeas are as follows:

The appeal of petitioners to the United States Supreme Court, as hereinbefore set forth, if successful, will be wholly fruitless and ineffectual unless the appeal operate as a supersedeas. Before said appeal could be heard and determined by the United States Supreme Court the orders of the Superior Court of the State of California, in and for the County of Los Angeles, construing and applying the statute of the State of California, the validity of which statute and orders under the Constitution of the United States are involved on said appeal, would be enforced against petitioners, either by contempt proceedings or otherwise.

The petition for writ of prohibition filed in said District Court of Appeal alleges, and the demurrer of the re-

spondents in said prohibition proceedings admits, the following allegations contained in said petition, which are hereby re-alleged herein:

"* * * Plaintiffs and said Superior Court have threatened to, and will unless prohibited from so doing, enforce said preliminary injunction as modified, by contempt proceedings, or by other process or orders, forcibly [fol. 687] shut in or curtail the production of gas and oil from said leases of petitioners, to conform to said preliminary injunction as modified. Petitioners are informed and believe, and upon that ground allege, that on April 14, 1930, the plaintiffs and/or said court will cause said preliminary injunction to be further so modified as to materially further decrease and limit the amount of gas and oil which can be produced from the various wells and leases of petitioners, whereby the rights and property interests of petitioners will be further invaded and petitioners will be further irreparably damaged without recourse.

* * * * * * *

"Petitioners have no plain, speedy or adequate remedy at law, Plaintiffs in said action have filed no bond of any sort in said action, and if said preliminary injunction is later reversed, or if it be later held that plaintiffs in said action were not entitled thereto, petitioners will be wholly without recourse for any loss or damage sustained by them respectively. Before an appeal from said order granting said preliminary injunction and/or said order modifying the same can be heard and determined, if the same are enforced by contempt proceedings or other process, or in any manner, many of the wells of petitioners respectively will be shut in and killed and/or curtailed in their oil and gas production, which will deprive them of a large daily production of oil, will cause permanent and irreparable injury and damage. Many of said wells so shut in or killed cannot later be placed on production, and those that can be replaced on production cannot be restored to the amount of production of oil which they otherwise would have. Petitioners have attempted to restore some of the wells which have been shut in and/or killed in attempting to comply with said preliminary injunction, without suc-

cess. Many of the wells shut in, killed or curtailed, as aforesaid, can not be restored to production, and those of of them which can be restored to production cannot be replaced on the oil production which they would otherwise have. Much of the oil which would be produced from the wells of petitioners if said preliminary injunction and said order modifying the same were not complied with or enforced will be lost to petitioners. The effect of said order granting said preliminary injunction and as modified as [fol. 688] aforesaid, by virtue of the very existence thereof pending appeal therefrom, is to cast a shadow over the rights of each of petitioners to the full and exclusive use and enjoyment of their properties which no stay in the operation and enjoyment thereof can or could remove. Their respective properties in said Santa Fe Springs oil field, by reason of the mere existence of said preliminary injunction and said order modifying the same, are each rendered less valuable, less usable and less salable. By reason of the existence of said order granting said preliminary injunction and of said order modifying the same, and the threatened enforcement thereof and the resulting taking or damaging thereof, their constitutional rights in and to their respective properties and the use and enjoyment thereof are invaded, notwithstanding any appeal from said order granting said preliminary injunction or said order modifying the same. The enforcement of said preliminary injunction as originally granted or as modified, will necessarily prevent diligent production of oil and gas by each of petitioners from any of said wells as provided and required under the terms of the respective leases under which the wells of petitioners respectively were drilled and operated which will endanger said leases through proceedings to forfeit same and thus cause a multiplicity of suits. Section 14b of said statute under which said action was commenced and prosecuted, by its terms provides that no temporary or permanent injunction granted thereunder may be dissolved or stayed pending an appeal, either upon the giving of any bond or undertaking or otherwise. If petitioners are successful on an appeal from said order granting said preliminary injunction and/or said order modifying the same, they will have no recourse against plaintiffs, or otherwise, for the dam-

ages which petitioners and each of them have sustained and will daily continue to sustain."

Petition for Writ of Prohibition, pp. 19-20, 25-27.

Mr. James S. Bennett, attorney for respondents, has stated in the presence of attorneys for petitioners that he expects to proceed against petitioners as soon as the restraining provisions contained in the Alternative Writ of [fol. 689] Prohibition issued by said District Court of Appeal are removed. Said Superior Court has set the matter of further modification of said preliminary injunction for February 16, 1931, and unless the stay herein requested is granted said preliminary injunction issued by said Superior Court under date of March 19, 1930, as modified under date of March 28, 1930, will be enforced against petitioners by contempt proceedings or otherwise and said Superior Court will take such further steps and proceedings against petitioners to further limit and curtail the production of oil and gas under the supposed authority of the Statute of California, as amended, hereinbefore referred to. By reason of the premises petitioners will, in effect, be deprived of their right to have the judgment of said District Court of Appeal reviewed by the United States Supreme Court either by writ of certiorari or appeal, unless the supersedeas and stay hereinabove prayed for is granted.

Wherefore appellants and petitioners and each of them pray for the allowance of an appeal from the said District Court of Appeal, Second Appellate District, Second Division, of the State of California, to the Supreme Court of the United States in order that the decision of said [fol. 690] District Court of Appeal, Second Appellate District, Second Division, of the State of California, may be examined and reversed, and also pray that a transcript of the record, proceedings and papers in this case, duly authenticated by the Clerk of the Supreme Court of the State of California or of the District Court of Appeal, Second Appellate District, Second Division, depending on which of them at the time holds the original record in said suit, may be sent to the Supreme Court of the United States as provided by law.

Petitioners, desiring the appeal to be a supersedeas, pray an order touching the security to be required of them and the approval of such bond as required in this case.

Respectfully submitted.

Robert B. Murphey, Asa V. Call, Counsel for Appellants and Petitioners.

[fol. 691] [File endorsement omitted.]

[fol. 692] In District Court of Appeal of California

[Title omitted]

Order Allowing Appeal—Filed Feb. 13, 1931

The appellants in the above entitled suit, and each of them, having prayed for the allowance of an appeal in this cause to the Supreme Court of the United States from the judgment of the District Court of Appeal, Second Appellate District, Second Division, of the State of California, filed November 29, 1930, and from each and every part thereof, and having presented and filed their petition for appeal, assignment of errors and prayer for reversal, pursuant to the statutes and the rules of the Supreme Court of the United States in this case made and provided;

It is now here ordered that an appeal be, and the same is, hereby allowed to the Supreme Court of the United States from the District Court of Appeal, Second Appellate District, Second Division, of the State of California in the [fol. 693] above entitled cause as provided by law, and it is further ordered that the Clerk of the District Court of Appeal, Second Appellate District, Second Division, of the State of California, shall prepare and certify a transcript of the record, proceedings and judgment in this cause and transmit the same to the Supreme Court of the United States so that he shall have the same in said court within sixty (60) days of this date, and it is further ordered that security that appellants shall answer all damages and costs if they fail to make their plea good be fixed in the sum of $10,000.00, said security to have the effect pending such appeal of a supersedeas and stay of execution and of other

proceedings under the judgment and as provided by the terms of the alternative writ of prohibition heretofore issued in said proceedings before said District Court of Appeal, Second Appellate District, Second Division of said State of California.

Dated January 29, 1931.

(Sgd.) Lewis R. Works, Presiding Justice of District Court of Appeal of the State of California, Second Appellate District, Second Division.

[File endorsement omitted.]

[fols. 694-699] Supersedeas and cost bond on appeal for $10,000, approved and filed January 29, 1931, omitted in printing.

[fols. 700-704] Citation, in usual form, showing service on U. S. Webb et al., filed February 13, 1931, omitted in printing.

[fol. 705] In District Court of Appeal of California

[Title omitted]

Præcipe for Transcript of Record—Filed Mar. 3, 1931

To the Clerk of the District Court of Appeal of the State of California, Second Appellate District, Second Division:

You are hereby requested to make an authenticated transcript of record under your hand and seal to be filed in the Supreme Court of the United States, pursuant to an appeal allowed in the above entitled cause, and to include in such transcript of record the following, with your filing marks showing the date of filing each in your office:

1. Copy of printed Petition for Writ of Prohibition.
2. Copy of Alternative Writ of Prohibition.
3. Copy of Demurrer of Respondents.

4. Copy of Order of District Court of Appeal denying Peremptory Writ of Prohibition.
5. Copy of Opinion of District Court of Appeal,.
6. Copy of printed Petition for Rehearing.
7. Copy of Order of District Court of Appeal denying Petition for Rehearing.
[fol. 706] 8. Copy of printed Petition for Hearing by Supreme Court of California.
9. Copy of Petition for Appeal, Request for Supersedeas, Assignment of Errors, and Prayer for Reversal.
10. Copy of Order Allowing Appeal.
11. Copy of Undertaking on Appeal.
12. Original Citation with proof of service and admission of service.
13. This præcipe and proof of service thereof.
14. Your Certificate under your hand and seal authenticating such transcript of record.

Said transcript is to be prepared and authenticated as required by law and the rules of the Supreme Court of the United States and to be filed at the office of the Clerk of the Supreme Court of the United States at Washington, D. C., on or before March 28, 1931, or within such time as may be as authorized by law.

Dated February 28, 1931.

(Sgd.) Robert B. Murphey, (Sgd.) Asa V. Call, Attorneys for Appellants.

Service of the above præcipe accepted and acknowledged this 28th day of February, 1931.

U. S. Webb, Attorney General; James S. Bennett, Attorneys for Appellees.

[File endorsement omitted.]

[fol. 707] In District Court of Appeal of California

[Title omitted]

Præcipe for Transcript of Record—Filed Mar. 4, 1931

To the Clerk of the District Court of Appeal, Second Appellate District, Second Division:

Your are hereby requested to authenticate the original map of Santa Fe Springs Oil Field filed April 21, 1930, in

the case of Bandini Petroleum Company, et al. v. Superior Court of the State of California, in and for the County of Los Angeles, 2nd Civ. No. 7292.

Said original map so authenticated to be filed at the office of the Clerk of the Supreme Court of the United States at Washington D. C., with the transcript prepared and authenticated by you, and to be filed on or before March 28, 1931, or within such time as may be authorized by law.

[fol. 708] Dated March 4, 1931.

U. S. Webb, Attorney General; (Sgd.) James S. Bennett, Attorneys for Appellees.

Service of the above Præcipe accepted and acknowledged this 4th day of March, 1931.

(Sgd.) Asa V. Call, (Sgd.) Robert B. Murphey, Attorneys for Appellants.

[File endorsement omitted.]

[fol. 709] [File endorsement omitted]

[fol. 710] In District Court of Appeal of California

Certificate

The undersigned, Deputy Clerk of the District Court of Appeal, Second Appellate District, Second Division, of the State of California, does hereby certify that he has had in charge the preparation of the record on appeal in the above entitled matter; that, due to pressure of other duties, he will not be able to complete the transcript of the record upon said appeal and certification thereof as required and so that the same may be filed in Washington, D. C., by [fol. 711] March 28, 1931; that it is necessary and advisable that the time for the filing of said record on appeal and the docketing of said case in the office of the Clerk of the United States Supreme Court be extended to April 27, 1931.

Dated March 23, 1931.

H. C. Lillie, Clerk, by C. L. King, Deputy.

[fol. 712] ORDER OF ENLARGEMENT OF TIME TO DOCKET CASE, ETC.—Filed Mar. 24, 1931

Good cause being shown therefor, it is hereby ordered that the time within which appellants may file an authenticated transcript of the record and other papers required by the Statutes of the United States and the rules of the Supreme Court of the United States in connection with the appeal taken by appellants to the Supreme Court of the United States from the judgment of the District Court of Appeal of the State of California, Second Appellate Dis-
[fol. 713] trict, Second Division, made and filed on November 29, 1930, which appeal was allowed on January 27, 1931, and within which to docket the case on said appeal, be and the same is hereby extended from March 28, 1931, to and including April 27, 1931.

Dated March 23, 1931.

Lewis R. Works, Presiding Justice of the District Court of Appeal of the State of California, Second Appellate District, Second Division.

[fol. 714] [File endorsement omitted]

[fol. 715] IN DISTRICT COURT OF APPEAL OF CALIFORNIA

[Title omitted]

CERTIFICATE AS TO FEDERAL QUESTIONS INVOLVED—Filed Mar. 24, 1931

This is to certify that each of the questions and propositions under the Constitution of the United States set forth in the various assignments of errors filed by appellants with their petition for appeal to the United States Supreme Court and which was allowed by the Honorable Lewis R. Works, Presiding Justice of the District Court of Appeal of the State of California, Second Appellate District, Second Division, under date of January 27, 1931, was duly, regularly, properly and timely raised by appellants
[fol. 716] and called to the attention of said court through-

out the proceedings involved on said appeal; that the contentions of appellants as to each of said questions, as set forth and claimed in said assignment of errors, and the various rights, privileges and immunities under the Constitution of the United States claimed by appellants in said assignment of errors, were specially set up and claimed by appellants throughout the proceedings sought to be reviewed by the United States Supreme Court upon said appeal, in accordance with the statutes, rules of court and practice prevailing in the State of California; that each of said questions was duly considered by this court on its merits and the contentions of appellants respecting each of said questions were each and all denied; that a decision upon each of said questions and claims of appellants was necessary to the decision and judgment of this court filed Novemmer 29, 1930.

This certificate is made for the purpose of being incorporated into the record on appeal filed in the Supreme Court of the United States in the above entitled matter, and for the purpose of showing that the federal questions above referred to were properly presented to and considered by this court in accordance with the practice of this state, and were decided adversely to the constitutional rights claimed by [fols. 717 & 717a] appellants in their said assignment of errors.

By order of the court.

Lewis R. Works, Presiding Justice of the District Court of Appeal of the State of California, Second Appellate District, Second Division.

[fol. 718] [File Endorsement omitted]

[fol. 719] In District Court of Appeal of California

[Title omitted]

Stipulation re Transcript of Record—Filed Mar. 25, 1931

It is hereby stipulated by and between appellants and appellees:

1. That in addition to the portions of the record designated in the præcipes filed by appellants and appellees,

there shall be incorporated into the transcript of the record to be transmitted to the United States Supreme Court the following:

(a) Certified copy of order of District Court of Appeal for issuance of alternative writ of prohibition.

[fol. 720] (b) Certified copy of minute order of District Court of Appeal denying peremptory writ of prohibition.

(c) Certified copy of the order of the Supreme Court of California denying the petition of appellants for a transfer to and hearing by said Supreme Court.

(d) Copy of topical index of "Brief in Support of Petition and Answer to Respondents' Memorandum of Authorities".

(e) Copy of that part of Rule XXX of the Supreme Court and District Courts of Appeal of the State of California specifying the time within which an application for a rehearing by a District Court of Appeal must be served and filed and the time within which an application for a transfer and hearing by the Supreme Court after decision by a District Court of Appeal may be served and filed.

(f) Certificate by the District Court of Appeal.

(g) Original of this Stipulation.

2. That the portions of the record designated in the Præcipe heretofore filed by appellants and the portion of the record designated in the præcipe heretofore filed by appellees constitute all the papers, records and proceedings which are necessary to the hearing of the appeal taken [fol. 721] by appellants herein to the Supreme Court of the United States and also for the review by the Supreme Court of the United States by certior-i of the judgment and decision of the District Court of Appeal of the State of California, Second Appellate District, Second Division, filed November 29, 1930, and which became final January 26, 1931, and the said transcript and record on appeal may be used upon any application by appellants by motion or petition for a review by the United States Supreme Court by certiorari proceedings of the said judgment.

3. That each of the questions arising under the Constitution of the United States set forth in the assignment of errors, filed by appellants herein, was duly, regularly, properly and timely raised by appellants in the prohibition proceedings before the District Court of Appeal, Second Appellate District, Second Division of the State of California, and in the petition of appellants for a rehearing by said court, and in the petition of appellants thereafter for a transfer to and hearing of said proceedings by the Supreme Court of California, all in accordance with the laws, rules of court and practice prevailing in the State of California; and that appellants, in all of said proceedings and in said petition for rehearing and in said petition for a transfer to and hearing by said Supreme Court of Cali- [fol. 722] fornia specifically set up and claimed certain rights, privileges and immunities under the Constitution of the United States, in accordance with the laws, rules of court and practice prevailing in the State of California and in accordance with the various claims and contentions of appellants in the assignment of errors filed by appellants with appellants' petition for appeal to the Supreme Court of the United States which was allowed on January 27, 1931; and that each of said rights, privileges and immunities was, and at all times has been, denied by the highest court of the State of California in which a decision in the suit could be had.

Robert B. Murphey, Asa V. Call, Attorneys for Appellants. U. S. Webb, Atty. Gen.; James S. Bennett, Attorneys for Appellees.

[fol. 723] Original

Service of a copy of the foregoing stipulation is hereby acknowledged, this 24 day of March, 1931.

U. S. Webb, Atty. Gen.; James S. Bennett, Attorneys for Appellees and Respondents.

[fol. 724] [File endorsement omitted]

IN DISTRICT COURT OF APPEAL OF CALIFORNIA

TOPICAL INDEX TO "BRIEF IN SUPPORT OF PETITION AND ANSWER TO RESPONDENTS' MEMORANDUM OF AUTHORITIES" —Filed Mar. 25, 1931

	Page
Statement of Uncontradicted and Admitted Facts	6
The Questions of the Lower Court's Jurisdiction Herein Presented Were Not Determined on the Previous Prohibition Proceedings	14
Jurisdictional Questions Herein Presented	17
I	
Chapter 535, Statutes of 1929, in Its Attempt to Prohibit and Make Unlawful and Even to Punish Criminally "the Unreasonable Waste of Natural Gas," Is so Vague, Uncertain and Indefinite, and Is so Devoid of Any Guide or Standard for Determining What Shall Constitute Waste of Natural Gas or Unreasonable Waste of Natural Gas or Reasonable Waste of Natural Gas, or What Can or Cannot be Done Under the Statute, That It Violates the Due Process Clauses of Both the Federal and California Constitutions and the Equal Protection Clause of the Fourteenth Amendment of the Federal Constitution, and Also Unlawfully Attempts to Delegate Legislative Power to the Supervisor of Oil and Gas and to the Court. Any Attempt by the Supervisor or the Court Necessarily Involves the Fixing of a Rule or Standard by the Supervisor of Oil and Gas or the Court, Which Involves the Exercise of Legislative Powers. The Lower Court in Attempting to Exercise Such Legislative Power in Its Preliminary Injunction, Exceeded Its Jurisdiction. The Lower Court Also Exceeded Its Jurisdiction in Attempting to Enforce a Statute Which Violates the Due Process and Equal Protection Clauses of the Federal and California Constitutions. Prohibition Is the Proper Remedy	19
The Rule Applies to Civil as Well as Criminal Proceedings, and Reasonableness or the Rule of Rea-	

Page

son is Not a Sufficient Guide or Standard for Valid Legislation Except Where Used in Connection [fol. 725] With a Subject Having a Common Law Background or so Well-known to the Average Man From Common, Every-day Experience That He Knows or Should Know What Is Prohibited 42

Cases Cited by Respondents Are Not in Point 64

None of the Statutes of Other States Has Used the Term "Unreasonable Waste of Natural Gas"; on the Contrary, a Definite Rule and Standard of Conduct Is Prescribed in Each 71

Further Particulars Wherein the California Statute Prohibiting the Unreasonable Waste of Natural Gas Is so Vague, Uncertain and Devoid of Any Guide or Standard in Determining What Is Permitted and What Is Prohibited, That It is Void .. 77

The Uncertainty Is Not Eliminated by Reference to Other Provisions of the Statute 90

The Uncertainty Is Not Eliminated by Construing the Statute With the Statute of 1911 95

Recourse Cannot Be Had to the Statutes of Other States to Determine What Is Meant by "Unreasonable Waste of Natural Gas" in the California Statute 98

The Water Cases Cited by Respondents Are not in Point 99

The Lack of Rule or Standard in the Statute Is Not Aided by the Provisions for Its Enforcement Through the Courts. The Court Cannot Act Without Itself Prescribing a Rule or Standard of Conduct, Which Involves the Exercise of Legislative Functions Prohibited by the Constitution 103

The Superior Court of This State Clearly Has no Jurisdiction to Exercise Legislative or Executive Functions, and Therefore Prohibition Is the Proper Remedy When It Attempts to do so 105

The Court Also Has no Jurisdiction to Enforce a Statute Which Is Void for the Lack of a Requisite Standard or Rule of Conduct, in That Such a Statute Violates the Due Process Clauses of the Fourteenth Amendment of the Constitution of the [fol. 726] United States and of the Corresponding Provision of the State Constitution 111

II

Page

Since the Statute Under the Sole Authority of Which the Suit in the Supreme Court was Commenced Permits the Production by Petitioners of Natural Gas in Quantities Not Exceeding a Reasonable Proportion to the Amount of Oil Produced From the Same Well and Petitioners Are Not Producing More Than the Statute Thus Allows, It Follows That the Lower Court Is Exceeding Its Jurisdiction in Enjoining the Production of the Amount of Natural Gas Which the Statute Permits. The Preliminary Injunction Is Therefore in Violation of the Implied Mandate of the Statute. The Order Is Otherwise Outside the Authority of the Court, and in Violation and Contravention of Statutory Prohibitions. When a Court Is Violating the Mandate of a Statute, or Outside the Authority of the Court and in Contravention of Statutory Prohibitions, It Is Acting in Excess of Its Jurisdiction and Prohibition Is the Proper Remedy..... 113

III

The Effect of the Preliminary Injunction, as Originally Granted and as Modified, Is to Deprive Petitioners of Their Property for the Public Use Without Just Compensation and Without Due Process of Law—Which the Superior Court, in no Event, Has Jurisdiction to do Without Eminent Domain Proceedings Having Been First Commenced, According to Law, and Just Compensation First Having Been Made to, or Paid Into Court for, Petitioners Respectively. Prohibition Is the Proper Remedy 125

The Petition Alleges, and the Uncontradicted Evidence Before the Lower Court Shows (as Is Admitted in the Demurrer to the Petition), That the Necessary Effect of the Orders of the Lower Court Complained of Is an Invasion of Petitioners' Rights and a Violation of the Constitutional Prohibitions and Guarantees Relied Upon..... 129

The Majority Rule Prevails in This State That Oil and Gas in Situ Are a Part of the Realty, and the

Page

Owner of the Land Has a Present Ownership [fol. 727] Thereof and Can Sell the Oil and Gas Under His Land in Place. The Ownership of Such Oil and Gas Is Absolute, Save That if It Is Drawn Onto the Land of Another It Cannot Be Pursued Except by Operations on the Owner's Own Land. The Owner Has the Right to Drill as Many Wells on His Land as He Pleases and in Such Places on His Land as He Pleases, and to Operate Them as Diligently as He Desires. This Has Long Been the Established Rule of Property in This State, Upon the Faith of Which Many Millions of Dollars Have Been Invested and Many Contracts Made. In Fact, This Rule of Property Has Been the Law of This State Since the Adoption of the Common Law in 1850 154

The Rule of Property in California of a Present Ownership of Oil and Gas in Situ Is the Majority Rule and Is Supported Both Upon Reason and Authority 176

Ohio Oil Co. v. Indiana, 177 U. S. 190, and Other Cases Cited by Respondents, Are Not in Point and Clearly Distinguishable 180

Neither the Statute Nor the Orders Complained of Can Be Justified for the Purpose of Protecting Correlative Rights 204

The California Statute Shows, on Its Face, That It Was Enacted for the Benefit of the General Consuming Public 206

The People of the State of California Have no Proprietary Interests in the Oil and Gas Deposits in Santa Fe Springs Oil Field 207

The Fact That a Small Quantity of the Gas Produced From Santa Fe Springs May Have Been Sold to Public Utilities, Does Not Constitute a Dedication by the Producers of Oil in Santa Fe Springs of the Gas in Said Field to a Public Use 208

The Business of Producing Oil and Gas Is Not a Business Affected With a Public Interest 208

Neither the Legislature Nor Respondents Have the Power to Conserve Natural Resources Held in Private Ownership for the Benefit of the General Public or Consumers 213

Page

[fol. 728] Whether the Majority or the Minority Rule of Property With Respect to Oil and Gas be Followed, Under Both Rules It Is Well Settled That When Gas Has Been Severed From the Soil and Is in Possession on the Surface the Original Ownership Thereof Is Absolute, Just Like the Ownership of Any Other Commodity, and the State Has no Right to Deprive the Owner of Its Use 217

The Real Purpose of the Statute and the Orders Complained of Is to Limit and Control the Amount of Oil Production, and Thus Regulate and Control the Price of Oil. This is Unconstitutional 219

Prohibition Is the Proper Remedy 220

IV

The Statute, as Construed and Sought to Be Enforced Through the Preliminary Injunction as Modified, Goes "Too Far in Its Interference With Vested Private Property Rights and the Use and Enjoyment Thereof," and Therefore Violates Due Process and Cannot Be Justified Under the Police Power. Prohibition Is the Proper Remedy 221

V

The Provisions of the Act Providing That the Blowing, Release or Escape of Natural Gas Into the Air Shall Be Prima Facie Evidence of Unreasonable Waste Violates the Requirements of the Federal and State Constitutions Guaranteeing the Due Process of Law 221

VI

The Statute and the Orders Complained of Impair the Obligations of the Various Leases of Petitioners, and Therefore Both the Statute and the Orders Complained of Are Unconstitutional, and Prohibition Is the Proper Remedy 223

VII

The Statute and the Orders Complained of Deprive Petitioners of the Equal Protection of the Laws,

Page

and Grant Special Privileges and Immunities, in Violation of the Federal and State Constitutions . . 224

VIII

The Remedy by Appeal Would Neither Be Plain, [fol. 729] Speedy Nor Adequate. Petitioners' Property Is "Less Valuable, Less Usable, Less Leaseable, Less Salable, With the Shadow of This Impending Injunction and Threatened Taking or Damaging Hanging Over It" (192 Cal. 330), and Besides, the Inconvenience and Expense of Litigation Make the Appeal Inadequate 226

Conclusion 227

[fol. 730] In District Court of Appeal of California

Extracts from Rule XXX of Supreme Court and District Courts of Appeal of California—Filed Mar. 25, 1931

"Rule XXX

"Applications for Rehearing and Hearing After Decision

"Sec. 1. * * *

"Application for a rehearing of any cause decided by the Supreme Court in bank or for a hearing in bank after a decision in department, and application for a rehearing of any cause, except a criminal cause, decided by a District Court of Appeal must be served on the adverse party and filed with proof of service within twenty days after the judgment is pronounced.

* * * * * * *

"Sec. 3. Application after a judgment of a District Court of Appeal has become final, for an order that the cause be heard and determined by the Supreme Court must be accompanied by a copy of the opinion of the District Court of Appeal, showing the date of filing thereof, and must be served on the adverse party and filed with proof of service within seven days in criminal causes and within

ten days in all other causes after the judgment of the District Court of Appeals has become final therein."

[File endorsement omitted.]

[fols. 731-732a] Clerk's certificate to foregoing transcript omitted in printing.

[fol. 733] IN SUPREME COURT OF THE UNITED STATES

ORDER OF ENLARGEMENT OF TIME TO DOCKET CASE, ETC.—Filed Mar. 28, 1931

Good cause being shown therefor, it is hereby ordered that the time within which appellants may file an authenticated transcript of the record and other papers required by the Statutes of the United States and the rules of the Supreme Court of the United States in connection with the appeal taken by appellants to the Supreme Court of the United States from the judgment of the District Court of Appeal of the State of California, Second Appellate Dis-
[fols. 734-736] trict, Second Division, made and filed on November 29, 1930, which appeal was allowed on January 27, 1931, and within which to docket the case on said appeal, be and the same is hereby extended from March 28, 1931, to and including April 27, 1931.

Dated March 23, 1931.

Lewis R. Works, Presiding Justice of the District Court of Appeal of the State of California, Second Appellate District, Second Division.

[fols. 737 & 738] [File endorsement omitted.]

[fol. 739] IN SUPREME COURT OF THE UNITED STATES

STATEMENT OF POINTS TO BE RELIED UPON BY APPELLANTS AND STIPULATION AS TO PARTS OF RECORD TO BE PRINTED—Filed April 15, 1931

Come now the appellants in the above entitled cause and adopt their Assignment of Errors as their statement of the

points to be relied upon, which may be more logically re- [fol. 740] stated under the following headings or points:

A. The United States Supreme Court has jurisdiction on appeal proceedings, under section 237, U. S. Judicial Code, to review the judgment of the California District Court of Appeal upholding the validity of the state statute involved against the asserted claim of its repugnance to the United States Constitution, and, incidental thereto, to review the decision by the state court of last resort upon any rights specially set up or claimed under the Federal Constitution.

B. The Superior Court acted in excess of its jurisdiction. It has no jurisdiction to enforce a state statute repugnant to the United States Constitution, or to make or enforce [fol. 741] an order the effect of which is to deprive appellants of rights thereunder, or to do any act or take any step in violation of the express or implied prohibition of the Federal or State Constitutions or the statute involved. Where it attempts so to do it is more than mere error; it is acting in excess of its jurisdiction.

C. It is within the province of this court on appeal from a state court to inquire into the facts, where such inquiry is essential to the enforcement of a right suitably asserted under the Federal Constitution, also, where, as here, the facts are admitted by demurrer, to review same and draw its own conclusions therefrom.

D. The California statute, under the supposed authority of which the action of the Superior Court was instituted [fol. 742] and the orders of that court were made, is so indefinite, vague and uncertain, and involves so many factors of varying effect and complexity as to what constitutes "unreasonable waste of natural gas" that an ordinary person cannot determine in advance with any safety or certainty what he may or may not do under it, and such statute and the attempted enforcement thereof against appellants violates the "due process" clause of the Fourteenth Amendment of the Federal Constitution.

E. Section 8d, which contains the only language throwing any light upon the meaning of "unreasonable waste of natural gas", is repugnant to the "due process" and

"equal protection" clauses of the Fourteenth Amendment [fol. 743] of the Federal Constitution: (1) in that it vests in an administrative and executive officer power to judicially determine property rights of producers of oil and gas; (2) in that it expressly permits the supervisor of oil and gas, even though he finds there is an unreasonable waste of natural gas by any operator or operators, to order the discontinuance thereof only "to the extent stated" in the order of said official, thus imposing in said official discretionary and arbitrary power resulting in possible favoritism and discrimination as between appellants and their competitors; and (3) in that, under the inseparable provisions of sections 8d and 9 of the statute, one set of owners and operators is permitted to determine the extent of the use of property, and the property rights, of other property owners.

[fol. 744] F. The legislative power of a state extends only to the regulation or protection of the private correlative rights of owners or operators in a common source of supply of oil or gas by preventing waste or other conduct by one or more of them which injuriously affects the correlative rights of others in the common source of supply. Legislation which goes further than this, and which is directed to the prevention or curtailment of production itself, cannot be sustained in the absence of compensation to the owner or owners thus deprived of the use of their property.

G. The California statute involved, as construed and applied to and sought to be enforced against appellants, deprives appellants of their property without due process of [fol. 745] law, in violation of the Fourteenth Amendment of the Federal Constitution, in that, under the uncontradicted and admitted facts, each of appellants' oil wells is being efficiently operated at a proper and lawful gas-oil ratio, and so as not to injuriously affect the rights or operations of other operators or owners in the same field, and the admitted sole purpose of the decrease in the allowed gas production of appellants required to be utilized by them in the efficient production of oil as aforesaid is to reserve such natural gas in the ground for light, heat and power for the future benefit of the general consuming

public, and this cannot be accomplished without compensation under the police power of the state, but requires the exercise of the power of eminent domain.

[fol. 746] H. The California statute involved, as construed and applied to and sought to be enforced against appellants, deprives appellants of their property without due process of law, in violation of the Fourteenth Amendment of the Federal Constitution, in that, under the admitted facts, the extent of the invasion of appellants' property rights is so great, so arbitrary, so oppressive and so unreasonable, that it cannot be sustained under the police power of the state but requires the exercise of the power of eminent domain.

I. The California statute involved, as construed and applied to and sought to be enforced against appellants, deprives appellants of their property without due process of [fol. 747] law, in that the means prescribed by the statute, as construed and applied to appellants, are, to a great extent, so unrelated to any purpose within the legislative power that the necessary effect and operation thereof constitutes a taking of the property of appellants in violation of said "due process" clause.

J. The California statute involved, as construed and applied to and sought to be enforced against appellants, deprives appellants of their property without due process of law, in that the California legislature cannot, by defining as "unreasonable waste of natural gas" the admitted highly beneficial and necessary use of natural gas in producing oil efficiently and at a proper gas-oil ratio, and so as not to injuriously affect the rights of other owners and/or operators in the same field, thereby deprive appel- [fol. 748] lants of the use of sufficient natural gas for such purpose. Mere legislative fiat may not take the place of fact in the determination of issues involving life, liberty or property.

K. The California statute involved, as construed and applied to and sought to be enforced against appellants, deprives appellants of their property without due process of law, in that the real purpose and effect of the statute and the attempted enforcement thereof against appellants is

to regulate and control the amount of oil production in its relation to the demand for oil and gasoline and thus regulate and control the price of oil and gasoline, which is a business not affected with a public interest, and therefore is in excess of the legislative power.

[fol. 749] L. The provision of the California statute involved providing that "the blowing, release or escape of natural gas into the air shall be prima facie evidence of unreasonable waste", is arbitrary, and as construed and applied against appellants violates the "due process" clause of the Fourteenth Amendment of the Federal Constitution.

M. The California statute, as construed and applied to and sought to be enforced against appellants, impairs the obligations of the oil and gas lease contracts of appellants requiring "diligent drilling and operation", and in two instances to "maximum capacity", under penalty of forfeiture, in violation of section 10 of Article I of the United States Constitution.

[fol. 750] N. The statute of California, as construed and applied to and sought to be enforced against appellants, denies to appellants the "equal protection of the laws" guaranteed to appellants by the Fourteenth Amendment of the United States Constitution: (1) in that it permits other owners or operators in the field to produce gas from their wells in excess of a reasonable proportion to the oil produced therefrom, when the excess gas produced is conveniently necessary for the generation of light, heat, power or other industrial purpose; (2) in that it permits competitors of appellants producing oil and gas in the same or other fields and having contracts for the sale of gas produced by them, to produce such gas for the purpose of supplying such contracts, and a correspondingly increased [fol. 751] quantity of oil, and denies appellants having little, if any, market for natural gas of their right to produce gas on an equality and to the same extent; and (3) in that. under section 8d of the act, which has been used as an alternative method of enforcing section 8b of the statute against appellants' competitors, the supervisor of oil and gas is expressly permitted, even though he finds there is an unreasonable waste of gas by any operator or operators,

to order the discontinuance of such unreasonable waste only "to the extent stated in said order", without power in the state to review such order, thus imposing discretionary and arbitrary power and resulting in favoritism and discrimination as between appellants and their competitors; [fol. 752] (4) in that, under sections 8d and 9 of the statute, one set of owners and operators is permitted to determine the extent of the use of property, and the property rights, of other property owners.

O. The necessary effect of the order of the Superior Court sought to be enforced against appellants and of the judgment of the District Court of Appeal upholding the validity thereof, is to deprive appellants of their property without due process of law, in violation of the Fourteenth Amendment of the Federal Constitution, and involves other rights and questions under the United States Constitution specially set up and claimed by appellants, and herein presented.

P. If it be held that appeal was improvidently sought and allowed under section 237(a), U. S. Judicial Code, then, [fol. 753] treating the papers whereon the appeal was allowed as a petition for certiorari under said section, appellants pray that a writ of error be granted, because the record presents a case within the jurisdiction of this court to review under subdivisions (b) and (c) of said section 237, in that substantial federal questions arising under asserted rights specially set up and claimed by appellants under the Federal Constitution are involved, including the validity of a California statute on the ground of its being repugnant thereto, and in that the decision of the lower court is not in accord with previous applicable decisions of this court and involves federal questions not previously decided [fol. 754] by this court.

Robert B. Murphey, Asa V. Call, Counsel for Appellants.

[fol. 755] STIPULATION AS TO PARTS OF THE RECORD TO BE PRINTED

It is hereby stipulated by and between counsel for appellants and appellees in the above entitled cause that

[fol. 756] only the following parts of the record as filed in this court need be printed by the Clerk for the hearing of this case on appeal proceedings or of any application for certiorari in the above entitled case:

Title of paper	Record pages, both inclusive
Petition for Writ of Prohibition, and all Exhibits thereto	3-327
Order Directing Issuance of Alternative Writ of Prohibition	327½
Alternative Writ of Prohibition	328-330
Demurrer of Respondents to Petition for Writ of Prohibition	331-332
Opinion and Judgment of District Court of Appeal of California	333-363
[fol. 757] Minute Order Denying Writ of Prohibition	363½
Petition for Rehearing, including cover pages, showing filing marks and endorsements, topical index, and table of cases and authorities cited, and introductory statement	363½-375
Order Denying Rehearing	486
Petition for Hearing by the Supreme Court, including cover pages and endorsements thereon, topical index, table of cases and authorities cited, introductory paragraph, and preliminary statement	487-508
Certificate to Petition for Hearing by Supreme Court	671
Order Denying Petition for Hearing by Supreme Court	671½
Petition for Appeal, Assignment of Errors, and Prayer for Reversal	672-690
[fol. 758] Order Allowing Appeal	692-693
Supersedeas and Cost Bond	694-698
Citation (to be printed only if appellees have not entered their general appearance)	699-704
Appellants' Præcipe for Transcript of Record	705-706
Respondents' Præcipe	707-708
Certificate of Clerk and Order of Enlargement	709-713
Certificate as to Federal Questions Involved	714-717
Stipulation of Counsel	718-722

Title of paper	Record pages, both inclusive
Topical Index to Brief in Support of Petition for Writ of Prohibition	724-729
Extracts from Rule XXX of Supreme Court and District Courts of Appeal of California	730
[fol. 759] Certificate of Clerk's Transcript of Record to United States Supreme Court	731-732
Statement of Points to be Relied upon by Appellants, and Stipulation as to the parts of the record to be printed	.....

Robert B. Murphey, Asa V. Call, Counsel for Appellants. U. S. Webb, James S. Bennett, Counsel for Appellees.

[fol. 760] Original

Receipt of a copy of the within statement of points to be relied upon by appellants and stipulation as to the parts of the record to be printed, is hereby acknowledged, this 10th day of April, 1931.

U. S. Webb, James S. Bennett, Counsel for Appellees.

[fol. 761] [File endorsement omitted.]

Endorsed on cover: File No. 35,774. California District Court of Appeal, Second Appellate District. Term No. 852. Randini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, et al., appellants, vs. The Superior Court of the State of California in and for the County of Los Angeles and Honorable William Hazlett, as one of the Judges thereof. Filed April 6, 1931. File No. 35,774.

FILE COPY

APR 30

CHARLES ELMORE

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1930.

No. 43

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation; and Ambassador Petroleum Company, a corporation,

Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the judges thereof,

Appellees.

ON APPEAL FROM THE DISTRICT COURT OF APPEAL OF THE STATE OF CALIFORNIA, IN AND FOR THE SECOND APPELLATE DISTRICT, SECOND DIVISION.

STATEMENT AS TO JURISDICTION ON APPEAL.

ROBERT B. MURPHEY,
ASA V. CALL,
Counsel for Appellants.

Parker, Stone & Baird Co., Law Printers, Los Angeles.

TOPICAL INDEX.

PAGE

A.

Statutory Provision Sustaining Jurisdiction..... 4

B.

Date of Decree and Date of Application for Appeal..... 5

C.

Nature of Case and Rulings Below..... 6

Uncontradicted and Admitted Facts..... 9

The Particulars in Which the California Statute, as Construed and Applied Against Appellants, Is Claimed in the Petition for Writ of Prohibition to Be Repugnant to the Constitution of the United States, and in Which the Statute, as Construed and Applied Against Appellants, Deprives Appellants of Rights, Privileges and Immunities Under the Constitution of the United States, and the References to the Record Showing They Were Specially Set Up and Claimed by Appellants..... 18

D.

Citation of Cases Believed to Sustain Jurisdiction..... 25

Appendix A—An Act to Protect the Natural Resources of Petroleum and Gas From Waste and Destruction, etc..... 51

TABLE OF CASES AND AUTHORITIES CITED.

PAGE

Abie State Bank v. Bryan, Case No. 63, Oct. Term 1930, 75 L. Ed. 420, 424 46
Act of Apr. 2, 1928, Ch. 440, 45 Stat. 468 4
Act of Feb. 13, 1925, Ch. 229, Sec. 1, 43 Stat. 937 (U. S. Code, Title 28, Sec. 344) 4
Act of Jan. 31, 1928, Sec. 2 ..... 4, 5
Act of Jan. 31, 1928, Ch. 14, 45 Stat. 54 4
Adams v. New York, 192 U. S. 585 48
Allen v. Railroad Com., 179 Cal. 68 35
Ambassador Petroleum Co. v. Superior Court, 208 Cal. 667 28
Ancient Egyptian Arabic Order v. Michaux, 279 U. S. 737, 745-746 34
Anderson v. Manchester Fire Assn., 59 Minn. 182, 60 N. W. 1095 43
Appleby v. Delaney, 271 U. S. 403 25
Associated Pipe Line Co. v. Railroad Com., 176 Cal. 518 35

Baar v. Smith, 201 Cal. 87 28
Bacon v. Walker, 204 U. S. 311 34
Bailey v. Alabama, 219 U. S. 219 48
Baltimore & Ohio R. R. Co. v. Maryland, 87 U. S. (20 Wall.) 643 47
Barlow v. Security Trust & Savings Bank, 197 Cal. 263, 267 38
Beasley v. Engstrom, 31 Idaho 14, 16 Pac. 1145 36
Beidler v. South Carolina Tax Commission, Advance Opinions, Case No. 2, Oct. Term 1930, 75 L. Ed. 69, 70 33
Bodcaw Lumber Co. v. Goode (Ark.), 254 S. W. 345, 29 A. L. R. 578 39
Boone v. Kingsbury, 77 Cal. Dec. 94 38
Branson v. Bush, 251 U. S. 182 39
Brinkerhoff-Faris Trust & Sav. Co. v. Hill, 281 U. S. 673 29
Brookshire Oil Co. v. Casmalia etc. Co., 156 Cal. 211 38
Buchanan v. Warley, 245 U. S. 60 ..... 35, 42
Buchanan v. Warley, 245 U. S. 60, 74 39
Burgess v. Seligman, 107 U. S. 20 45

PAGE

California Code of Civil Procedure, Secs. 577, 1102-1105, 1088, 1094, 52-a 26
Chandler v. Hart, 161 Cal. 405, 412-413,418 ..... 38, 39
Chicago, B. & Q. R. Co. v. Chicago, 166 U. S. 226 ..... 29, 31
Chicago etc. Co. v. Perry, 259 U. S. 548 26
Chicago N. W. R. R. Co. v Dey, 35 Fed. 866 43
Citizens Bank v. Opperman, 249 U. S. 448 25
Cleveland, C. C. & St. L. R. Co. v. Backus, 154 U. S. 439 39
Cline v. Frink Dairy Company, 274 U. S. 445 ..... 24, 42, 43, 44
Commonwealth v. Maletsky, 203 Mass. 241 43
Concordia Ins. Co. v. Bryan, Case No. 278, Oct. Term 1930, 75 L. Ed. 387, 391 45
Connally v. General Construction Co., 271 U. S. 385 ..... 24, 43
Consolidated Turnpike Co. v. Norfolk etc. Ry. Co., 228 U. S. 596, 57 L. Ed. 982 22
Cook v. State, 26 Ind. App. 278, 59 N. E. 489 43
Cooley's Constitutional Limitations, 8th Ed., Vol. I, p. 583 49
Coppage v. Kansas, 236 U. S. 1, 59 L. Ed. 441 ..... 32, 40, 42
Corn Products Refining Co. v. Eddy, 249 U. S. 427, 63 L. Ed. 689 32
Cotting v. Godard, 183 U. S. 79 49

Darling v. Newport News, 249 U. S. 540, 63 L. Ed. 79 32
Detroit Creamery Co. v. Kinnane, 264 Fed. 845 43
Dowling v. Lankershire Ins. Co., 92 Wisc. 63, 65 N. W. 738 43
Duvall v. White, 46 Cal. App. 305 38

Edward Hines Yellow Pine Trustees v. Martin, 268 U. S. 458 45
Ex parte Kelso, 147 Cal. 609 ..... 35, 40, 42
Ex parte McNulty, 77 Cal. 164 43
Ex parte Reed, 100 U. S. 13 31
Ex parte Virginia, 100 U. S. 339 29
Ex parte Yarbrough, 110 U. S. 651 29

Federal Oil Conservation Board of May 27, 1926, at page 12 36
Foster Fountain Packing Co. v. Haydel, 278 U. S. 1, 8-9 42

Graciosa Oil Co. v. Santa Barbara, 155 Cal. 140 38

PAGE

Grayson v. Harris, 267 U. S. 352 27
Grubb v. Public Utilities Commission, 281 U. S. 470, 477-8 31

Hamilton Brown Shoe Co. v. Wolff Bros. & Co., 240 U. S. 482 34
Hartman v. Greenhow, 102 U. S. 672 26
Hathorn v. Natural Carbonic Gas Co., 194 N. Y. 326 35
Havemeyer v. Superior Court, 84 Cal. 327 29
Hayes v. Missouri, 120 U. S. 68 49
Herminghaus v. So. Cal. Edison Co., 200 Cal. 81, 107, 112, 115-118, 274 U. S. 728, 275 U. S. 486-487 ..... 35, 36, 42
Hewitt v. Board of Medical Examiners, 148 Cal. 590 ..... 43, 44
Hill v. Smith, 260 U. S. 592 ..... 26, 27
Home Ins. Co. v. Dick, 281 U. S. 397 27
Home Teleph. & Teleg. Co. v. Los Angeles, 227 U. S. 278 29

In re Clarence Lockett, 179 Cal. 581 43
In re Opinion of Justices, 208 Mass. 619, 94 N. E. 1044 48
In re Peppers, 189 Cal. 682 43
In re Schmolke, 199 Cal. 42 43
In re Toyu Kee, 12 Haw. 164 43
In re Williams, 74 Cal. App. 331 45
International Harvester Co. v. Kentucky, 234 U. S. 216, 232-233 ..... 43, 44
Interstate Amusement Co. v. Albert, 239 U. S. 560 33
Isom v. Rex Crude Oil Co., 147 Cal. 659 38

Jacobsen v. Superior Court, 192 Cal. 319 ..... 18, 28, 30, 31
Judicial Code, Sec. 237 4

Klinger v. Missouri, 80 U. S. (13 Wall.) 257 47

Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61, 73-77 34
Long v. Superior Court, 102 Cal. 449 28
Louisianan R. & Nav. Co. v. Behrman, 235 U. S. 164, 171, 59 L. Ed. 175 32
Louisville etc. R. R. Co. v. Commonwealth, 99 Ky. 132, 35 S. W. 129 ..... 43, 45

PAGE

Manley v. Georgia, 279 U. S. 1 48

Marin County v. Town of Sausalito, 168 Cal. 587 35

Marvin v. Trout, 199 U. S. 212, 50 L. Ed. 157 22

Maverick Oil Co. v. Powell, 237 U. S. 40 49

McClatchy v. Superior Court, 119 Cal. 413 28

McFarland v. American Sugar Ref. Co., 241 U. S. 79 ..... 36, 48, 49

Merchants Nat'l Bank v. Richmond, 256 U. S. 635, 65 L. Ed. 1135 ..... 32, 33

Michigan Central R. Co. v. Mix, 278 U. S. 492 26

Mills & Willingham, "The Law of Oil and Gas," 1926 Ed., pp. 20, 22 38

Minnesota v. Barber, 136 U. S. 313 35

Missouri v. Taylor, 266 U. S. 200 ..... 26, 29

Mt. Vernon-Woodbury Cotton Duck Co. v. Alabama Interstate Power Co., 240 U. S. 30 ..... 26, 29

Napa Electric Co. v. United States, 251 U. S. 366 ..... 25, 29

New York *ex rel* Bryant v. Zimmerman, 278 U. S. 63, 67, 73 L. Ed. 184, 187 ..... 22, 24, 29, 31, 32

Norfolk Turnpike Co. v. Virginia, 225 U. S. 364 25

North Carolina R. Co. v. Zachary, 232 U. S. 247 ..... 26, 27

Ohio Oil Company v. Indiana, 177 U. S. 190 ..... 34, 39

Ohio Public Service Co. v. State of Ohio, 247 U. S. 12 25

Osborn v. Arkansas Oil & Gas Co., 103 Ark. 175 Annotated Note, 29 A. L. R. 586-589 39

Pacific Gas etc. Co. v. Police Court, 251 U. S. 22 ..... 25, 26, 29

Payne v. Neuval, 155 Cal. 46 38

Pennsylvania Coal Co. v. Mahon, 260 U. S. 393 ..... 35, 39, 49

Pennsylvania R. Co. v. Public Service Commission, 250 U. S. 566 30

People v. Pace, 73 Cal. App. 548 43

PAGE

Portneuf-Marsh Valley Canal Co. v. Brown, 274 U. S. 630 45

Postal Tel. etc. Co. v. Adams, 155 U. S. 689, 39 L. Ed. 311 30

Postal Tel. Cable Co. v. Newport, 247 U. S. 469 33

Prudential Ins. Co. v. Cheek, 259 U. S. 530 50

Pumpelly v. Green Bay Company, 80 U. S. 166 39

Re Peterson, 253 U. S. 300 48

Rogers v. Hennepin County, 240 U. S. 184 27

San Bernardino v. Riverside, 186 Cal. 7 36

Schaezlein v. Cahaniss, 135 Cal. 466 45

Scott v. McNeal, 154 U. S. 34 29

Small v. American Sugar Refining Co., 267 U. S. 233 43

Standard Chem. & Metals Corp. v. Waugh Chem. Co., 231 N. Y. 51, 131 N. E. 566 ..... 43, 44

Stat. Cal. 1915, Ch. 718 7

Stat. Cal. 1917, Ch. 759 7

Stat. Cal. 1919, Ch. 536 7

Stat. Cal. 1921, Ch. 912 7

Stat. Cal. 1929, Ch. 535, Secs. 8b and 14b 7

State v. Board of Canvassers, 159 Wis. 216, 150 N. W. 542 43

State v. Boswick, 13 R. I. 211 48

State v. Diamond, 27 N. M. 477, 20 A. L. R. 1527 43

Swiss Oil Corp. v. Powell, 199 Ky. 863, 251 S. W. 1007 49

Terrace v. Thompson, 263 U. S. 197 39

Terre Haute & I. R. Co. v. Indiana *ex rel.* Ketcham, 194 U. S. 579 47

Texas Co. v. Daugherty, 107 Tex. 234, 176 S. W. 717, 719-721 .. 39

1 Thornton's Law of Oil and Gas, par. 25a, p. 95 39

Tonningsen v. Odd Fellows' Cem. Assn., 60 Cal. App. 568 28

Tozer v. United States, 52 Fed. 917 ..... 43, 44

PAGE

Truax v. Corrigan, 257 U. S. 312.....9, 33, 49

Tyson & Bro. v. Banton, 273 U. S. 418..... 36

Union Pacific R. Co. v. Public Service Commission, 248 U. S. 67, 69 33

United States Judicial Code, Sec. 237(a) (Act of Feb. 13, 1925, Ch. 229, Sec. 1, 43 Stat. 937, U. S. Code, Title 28, Sec. 344) 26

United States v. Bernstein, 267 Fed. 295..... 43

United States v. Brewer, 139 U. S. 278..... 43

United States v. Capital Traction Co., 34 App. D. C. 592, 19 Ann. Cas. 68..... 43

United States v. Cohen Grocery Co., 225 U. S. 81.....42, 44

United States v. Pennsylvania R. Co., 242 U. S. 208.....24, 43, 44

United States v. Reese, 92 U. S. 214..... 43

United States v. Sharp, Fed. Cas. 16,264, 27 Fed. Cas. 1041..... 43

U. S. v. Carber, 260 U. S. 482..... 34

Walls v. Midland Carbon Co., 254 U. S. 300..... 34

Ward v. Love County, 253 U. S. 17..... 47

Weed & Co. v. Lockwood, 255 U. S. 104..... 43

Weintraub v. Superior Court, 91 Cal. App. 763..... 28

West v. Kansas Nat. Gas Co., 221 U. S. 229, 246.....34, 35, 37

Western & A. R. Co. v. Henderson, 279 U. S. 639.....48, 49

Weston v. Charleston, 2 Pet. 449.....26, 29

Williams v. Standard Oil Co., 278 U. S. 235.....36, 46

Windsor v. McVeigh, 93 U. S 274, 282..... 31

Xenia v. Schmidt, 101 Ohio St. 437, 130 N. E. 24..... 43

Yick Wo v. Hopkins, 118 U. S. 356.....43, 46, 49

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1930.

No. 852.

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation; and Ambassador Petroleum Company, a corporation,

Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the judges thereof,

Appellees.

STATEMENT AS TO JURISDICTION ON APPEAL.

May It Please the Court:

The appellants, in support of the jurisdiction of this court to review the above entitled cause on appeal, respectfully represent:

A.

Statutory Provision Sustaining Jurisdiction.

By the Act of February 13, 1925, chapter 229, section 1, 43 Stat. 937 (U. S. Code, Title 28, Sec. 344), section 237 of the Judicial Code was amended to read in part as follows:

> "(a) *A final judgment or decree in any suit in the highest court of a state in which a decision in the suit could be had,* where is drawn in question the validity of a treaty or statute of the United States, and the decision is against its validity; or *where is drawn in question the validity of a statute of any state, on the ground of its being repugnant to the Constitution,* treaties, or laws *of the United States, and the decision is in favor of its validity, may be reviewed by the Supreme Court upon a writ of error.* The writ shall have the same effect as if the judgment or decree had been rendered or passed in a court of the United States. The Supreme Court may reverse, modify, or affirm the judgment or decree of such state court, and may, in its discretion, award execution or remand the cause to the court from which it was removed by the writ." (Italics ours.)

The Act of January 31, 1928, chapter 14, 45 Stat. 54, provides as follows:

> "That the writ of error in cases civil and criminal is abolished. *All relief which heretofore could be obtained by writ of errors shall hereafter be obtained by appeal."* (Italics ours.)

The Act of April 2, 1928, chapter 440, 45 Stat. 468, amends section 2 of the Act of January 31, 1928, to read as follows:

"Sec. 2. The statutes regulating the right to a writ of error defining the relief which may be had thereon, and prescribing the mode of exercising that right and of invoking such relief, including the provisions relating to costs, supersedeas, and mandate, shall be applicable to the appeal which the preceding section substitutes for a writ of error."

B.

Date of Decree and Date of Application for Appeal.

The judgment or order sought to be reviewed was rendered on November 29, 1930. [R. * 363½.] This appeal is to review a judgment of the District Court of Appeal of the state of California, Second Appellate District, Second Division, denying appellants' petition for a peremptory writ of prohibition [R. 1] to prevent the Superior Court of Los Angeles county from enforcing a preliminary injunction against appellants or taking further proceedings against appellants in an action brought by the State of California under a statute of that state, hereinafter referred to, to enjoin the alleged "unreasonable waste of natural gas" by appellants and others in Santa Fe Springs oil field. By said petition for writ of prohibition there was drawn in question the validity of the statute of California under which said suit was brought prohibiting the unreasonable waste of natural gas, upon the ground that said statute is repugnant to the Constitution of the United States. An alternative writ of prohibition [R. 328] had heretofore been issued on the 9th day of April,

---

*All references to the record are to the pages of the certified unprinted record prepared by the clerk of the District Court of Appeal of the state of California in and for the Second Appellate District, Second Division, and on file with the clerk of said court. The record has not yet been printed.

1930. [R. 327½.] The opinion of said District Court of Appeal [R. 333] is not yet officially reported, but is found in the Advance Sheets at 63 Cal. App. Dec. 1175. On December 19, 1930, appellants petitioned said court for a rehearing, which petition was timely filed [R. 364] and which was denied by said court on December 27, 1930. [R. 486.] On January 8, 1931, appellants petitioned the Supreme Court of California for an order for a transfer to and a hearing of said cause by said court, which petition was timely filed [R. 487] and which was denied by said court on January 26, 1931. [R. 671½.]

The petition for appeal and prayer for reversal, together with the assignment of errors by appellants [R. 676] were presented to and allowed on January 29, 1931, by the presiding justice of said District Court of Appeal [R. 692], which was the highest court in the state in which a decision in the cause could be had.

C.

Nature of Case and Rulings Below.

As a preface to a showing, with definite references to the pertinent pages of the record, that the nature of the case and the rulings below are such as to bring the case within the jurisdictional provisions of section 237 (a) of the United States Judicial Code relied on, the following brief statement of the case is submitted:

The case comes to this court on an admitted statement of facts, which is set forth in the Petition for Writ of Prohibition filed in the lower court. [R. 1.] The allegations of this petition are admitted to be true by the demurrer [R. 331], which was the only return filed thereto.

It appears from this petition that on September 11, 1929, the People of the State of California, on relation of Fred G. Stevenot, Director of Natural Resources of said state (hereinafter referred to as "the State") commenced an action in the Superior Court of the state of California, in and for the county of Los Angeles, against each of appellants and various other owners and/or operators of oil wells in Santa Fe Springs oil field, in Los Angeles county, California, seeking to enjoin the alleged "unreasonable waste of natural gas" in said field. [R. 4.] Said suit was commenced and maintained solely under the supposed authority of sections 8*b* and 14*b*, amended in 1929, and amendatory of a statute of California entitled "An Act to Protect the Natural Resources of Petroleum and Gas from Waste and Destruction," etc. (Stat. Cal. 1915, ch. 718, as amended by Stat. Cal. 1917, ch. 759, as amended by Stat. Cal. 1919, ch. 536, as amended by Stat. Cal. 1921, ch. 912, as amended by Stat. Cal. 1929, ch. 535.) Full text of the material and pertinent provisions of said statute is set forth in Appendix A to this statement.

Sections 8*b* and 14*b* of said statute, which were added by amendment in 1929, we quote for the convenience of the court:

> "SEC. 8*b*. The unreasonable waste of natural gas by the act, omission, sufferance or insistence of the lessor, lessee or operator of any land containing oil or gas, or both, whether before or after the removal of gasoline from such natural gas, is hereby declared to be opposed to the public interest and is hereby prohibited and declared to be unlawful. The blowing, release or escape of natural gas into the air shall be *prima facie* evidence of unreasonable waste."
>
> "SEC. 14*b*. Whenever it appears to the director of the department of natural resources that the owners,

lessors, lessees or operators of any well or wells producing oil and gas or oil or gas are causing or permitting an unreasonable waste of gas, he may institute, or have proceedings instituted, in the name of the people of the state of California, to enjoin such unreasonable waste of gas regardless of whether proceedings have or have not been instituted under section 8 hereof, and regardless of whether an order has or has not been made therein. Such proceedings shall be instituted in the superior court for the county in which the well or wells from which the unreasonable waste of gas is occurring or any thereof are situated. The owners, lessors, lessees or operators causing or permitting an unreasonable waste of gas in the same oil or gas field, although their properties and interests may be separately owned and their unreasonable waste separate and distinct, may be made parties to said action. In such suits no restraining order shall be issued *ex parte*, but otherwise the procedure shall be governed by the provisions of chapter three, title seven, part two of the Code of Civil Procedure of the state of California, and no temporary or permanent injunction issued in such proceedings shall be refused or dissolved or stayed pending appeal upon the giving of any bond or undertaking, or otherwise."

The petition for a writ of prohibition [R. 1], after alleging the filing of the complaint [R. 34], the issuance of an order to show cause why a preliminary injunction should not be made [R. 58], the filing of affidavits and authorities [R. 34-97], the amendment to the complaint [R. 264], and the filing by appellants of a demurrer to the complaint [R. 98], answer [R. 127], affidavits [R. 186-263], demurrer to said complaint as amended [R. 270], and amendment to answer [R. 275], and annexing as exhibits a copy of said pleadings and affidavits [R. 30-298], alleges certain facts which it is alleged appeared from the uncontradicted evidence introduced upon the

hearing of said order to show cause [R. 7-14], all of which the demurrer to the petition for writ of prohibition admits. These admitted and uncontradicted facts are summarized here, for the reason that it is well established that where the facts upon the basis of which a Federal right is asserted, are set out in the pleadings and are admitted by demurrer, this court is not bound by conclusions of the highest court of the state as to their effect but will analyze the facts as averred and draw its own inferences as to their ultimate effect (*Truax v. Corrigan,* 257 U. S. 312, and cases therein cited), and will also examine the facts to determine whether or not the basis of facts upon which the state court rests its decision denying an asserted Federal right is without support in the record. (See cases cited under point "*D*," of accompanying brief of appellants in opposition to motion to dismiss or affirm.)

Uncontradicted and Admitted Facts.

The use of natural gas as a propelling force in moving and producing oil is prevalent throughout the state of California and is in accordance with universal custom. [R. 7.] In fact, the chief and primary value of the natural gas produced from flowing oil wells is in flowing oil to such wells and lifting the oil produced therefrom to the surface. [R. 9.] Indeed, none of the oil produced from flowing wells in said Santa Fe Springs oil field could be produced without the utilization of the lifting force of the gas held under high pressure in solution with the oil. [R. 8.] When a well penetrates an oil and gas zone in such field the pressure is released from about the well causing the oil and gas to flow toward the point of lower

pressure at the well. This does not cause a drop and disturbance in the pressure throughout the zone but only in the immediate vicinity of the well. [R. 131-132, 136, 6 par. 4.] The oil and gas underlying any given surface area is fixed in place and does not move beyond the immediate vicinity of a penetrating well. [R. 132, 6 par. 4.]

> "The major and primary value of the oil and gas deposits in each of the zones in Santa Fe Springs oil field is in the oil content thereof which is of far greater value than the gas content." [R. 156, 6 par. 4.]

ALL of the operators in the field are operating their wells primarily and chiefly for the oil produced, and the production of gas therefrom is incidental and a necessary result of the *utilization* of the gas for the highly beneficial purpose of producing oil. [R. 9.] It is not and will not be possible for any of appellants to operate any of their wells and to produce oil therefrom without the production of natural gas in reasonable quantities as a necessary concomitant. [R. 8.] What is a reasonable proportion of natural gas to the amount of oil produced from the same well in Santa Fe Springs oil field, varies widely in different parts of said field and in different parts of the same producing zone and varies with each well penetrating any zone in said field with the age of the well, increasing frequently as the well becomes older, *and is governed largely by natural conditions which cannot be controlled to any great extent.* [R. 8, 133-134, 6.]

Appellants are the owners of fee simple and leasehold estates in various properties specifically set forth and described [R. 6, 166, 175], most of its properties being leasehold estates. By the terms of the leases creating

said leasehold estates, the lessee is required, as long as petroleum in paying quantities can be produced therefrom, to operate each well thereon *diligently* and in good faith, with the exception of two leases therein described, by the terms of which the lessee is required to operate each well thereon to its *maximum capacity*. All of said leases contain a provision that the lease may be forfeited by the lessors upon notice of from thirty to ninety days if the lessee fails to comply with any of the provisions therein set forth to be performed by the lessee thereunder. [R. 6, 175-176.] The reasonable value of these leasehold estates and the buildings, riggins, equipment and other property thereon belonging to appellants is in excess of $21,000,000. [R. 179-180.] *No natural gas is being produced by any of appellants from any oil well or wells in said oil field in any quantity exceeding a reasonable proportion to the amount of oil produced therefrom, or in a quantity more than is reasonably or necessarily required in the production of oil therefrom in accordance with efficient methods and appliances.* [R. 8, 12.] *Each of the wells of appellants in said field is efficiently operated, and is so operated that it does not injuriously affect the operations of others owning and/or operating wells in said field.* [R. 13.] The gas-oil ratio of each well producing oil and gas is a fair index to the efficiency of such well in the reasonable utilization of natural gas in the production of oil, and *the gas-oil ratio of the wells of appellants is the third lowest amongst the nine largest producers of oil in said field.* [R. 13.]

It also appears from appellants' answer to the complaint (the allegations and denials of which are re-alleged and

incorporated in the petition for writ of prohibition [R. 6] and are *admitted by the demurrer* to the petition for writ of prohibition) that the quantity of gas which comes out of each of the wells of appellants in the production of oil is a reasonable and not a wasteful quantity of gas [R. 139]; that the use and utilization by each of appellants "of such quantities of natural gas in producing said oil is a useful and beneficial use thereof and is not a waste or unreasonable waste thereof." [R. 139-141.] The operations of appellants' wells are not such that any other owners or operators in the field "will be deprived of their or any of their share of the natural gas and/or oil * * * or are or will be injured or damaged in any respect whatever." [R. 142-143.] None of appellants "is producing from any of its respective wells an undue or unreasonable amount of oil and/or gas or is taking from any sand penetrated by any of its respective wells more than its just share or proportion of the oil and/or gas in any such zone. * * * Each of said wells has been so drilled, completed and operated, and is so operated, * * * as not to interfere with, injure or damage the interests or rights of neighboring property owners, lessees or operators." [R. 155-156.]

The petition for the writ of prohibition alleges, and the demurrer thereto admits that on March 16, 1930, three days before the date of the preliminary injunction hereinafter referred to, appellants were producing 19,554 barrels of net oil per day (by "net" is meant after taking out impurities, water content, etc.), and the amount of natural gas reasonably required to be utilized to flow and lift that amount of oil to and out of the wells was 57,120,000 cubic feet per day under efficient methods.

[R. 10-11.] The market value of a barrel of crude oil on said date was, and is now, $1.60 a barrel [R. 19], so that the market value of the oil produced daily by appellants on March 16, 1930, was approximately $31,286.40. The oil production of petitioners on March 20, 1930, was 19,416 barrels. [See schedule, R. 15.]

In addition to this most valuable, reasonable and efficient *utilization* of the natural gas in producing said quantity and value of oil (*viz.*, in lifting and flowing the oil to the surface, which could not otherwise have been produced), all natural gas produced by appellants was and is *further utilized* in the manufacture of casing-head gasoline of the approximate value on said date of $3,000.00 per day. [R. 12.] So much of the resulting dry natural gas remaining after the extraction and manufacture of such casing-head gasoline as could be utilized further was and is *still further utilized* for fuel purposes on the various leases and for field and other uses in the operations of appellants, and so much as could be sold was sold [R. 12], but the amount sold was small, and the amount received therefor was only 5¢ per thousand cubic feet, which was and is the prevailing price. [R. 19.] There was and is no other available means to any of appellants for any further utilization of the remaining dry gas, and *such remaining dry gas had and has no market value.* [R. 12.] Notwithstanding that appellants made diligent efforts during all of said time, *none of them has been able to sell or even give away such remaining dry gas.* [R. 12.] It must be used as produced, and cannot be stored except at a cost far in excess of its value. [R. 154, 156, 6.] By reason of the premises appellants were and are compelled, after making the aforesaid *manifold utilizations* thereof, to

release and permit the remaining dry gas to escape into the air. [R. 12-13.]

Notwithstanding these undisputed facts, which are admitted by the demurrer to the petition for writ of prohibition to have been established in the Superior Court by uncontradicted evidence, that court, on March 19th, 1930, acting under the supposed authority of said statute (*and for the sole purpose of conserving such natural gas for the benefit of the general public,* R. 23), made its preliminary injunction by the terms of which appellants were required to curtail their production of gas from 57,120,000 to 27,187,000 cubic feet per day [R. 16, 288-314, particularly R. 309.] The petition for the writ of prohibition alleges, and the demurrer thereto admits, that *the "sole ground" for this curtailment of appellants' gas production was "for the purpose of conserving such natural gas for the benefit of the general public."* [R. 23.] This also appears from the face of the preliminary injunction itself, which, after reciting that "There appears to be an unreasonable waste of natural gas in the Santa Fe Springs oil *field,"* and that same "may be substantially reduced * * * *by restricting the production thereof to a quantity reasonably in excess of the present outlets for beneficial use above ground."* [R. 296] This the court proceeded to do by fixing such quantity at 285,000 M. C. F. per day and limiting the gas production from the field to that amount, which the court allocated amongst the various operating properties in the field, on the arbitrary basis of 1,200 cubic feet of gas for each barrel of the potential oil production from the wells on each property. [R. 296-310.] *There was no finding that any of appellants were unreasonably wasting natural gas.* The

only finding of an unreasonable waste of natural gas was as to the field as a whole. [R. 296.]

The allowed gas production to appellants is only approximately 48% of the gas required to produce the amount of oil which appellants were then producing, in operating their wells efficiently at a proper gas-oil ratio, and so as not to injuriously affect the operations of others owning and/or operating wells in said field, as aforesaid. On March 28th an order was made modifying this injunction so as to provide for new wells coming in since the original order [Appendix, R. 318], by the terms of which order the allowed gas production to appellants was slightly increased on account of such new wells to a total of 28,160,000 cubic feet per day. [See R. 16, and schedule on R. 18.] The amount of oil which can be produced by appellants with the allowed gas production under said order as modified, through the most efficient operation of such of the wells thereon as are not required to be shut in and killed, as hereinafter stated, does not exceed 10,211 barrels per day, or less than 50% of the daily net oil production of appellants at the time of the making of such preliminary injunction. [R. 14-15.] Not only this, but the enforcement of said preliminary injunction requires the shutting down and/or killing by appellants of many producing oil wells, the average cost of each of which is $150,000.00. The danger of permanent injury resulting from shutting down a well is great, particularly as to wells located on the outer edges of the field, as are many of the wells of appellants, and even to attempt to curtail the production of oil and gas from any well endangers such well. In the case of many of the wells located on the flank or edge of the field there is serious

danger of water encroachment from the edge of the field, and in some instances this has prevented, and will probably continue to prevent, replacing such wells to their former production. The decrease in the allowed gas production to appellants would also impair the ability of appellants to protect themselves against offset wells on large adjoining leaseholds. [R. 13-14.]

Immediately after the making of said preliminary injunction on March 19, 1930, appellants attempted to comply therewith, using the best skill and knowledge obtainable, with the result that four of their wells died and were killed, and eleven of their wells had to be shut in, and the gas pressure on one well became so great that it burst through the casing-head on April 2, 1930, and caught fire, burning for several days and causing considerable damage to appellants. [R. 16-17.] Said wells have been permanently and irreparably damaged, and there is serious danger that other wells of appellants, which have been or will have to be pinched back or curtailed in the production of gas if said orders are enforced, will die and that they cannot be restored to their former production. [R. 17.] Furthermore, on April 2, 1930, as the result of appellants' efforts to comply with said injunction, as aforesaid, their daily net oil production had been cut from 19,416 barrels to 11,790 barrels, and their gas production cut from 62,017 M. C. F. to 33,546 M. C. F. per day. [R. 17-19.] This results in a decrease in income and loss in oil to appellants of approximately $12,500.00 per day, and a loss of $3000 per day in casing-head gasoline. [R. 19.] In order for appellants to comply with said preliminary injunction further it would be

necessary for them to shut in and/or kill other wells, which would cause further irreparable damage. [R. 19.]

It further appears that, unless prohibited by a writ of prohibition from so doing, said orders would be enforced against appellants by contempt proceedings or other process, and *would be further modified and enforced so as to further materially decrease the amount of oil and gas which petitioners could produce,* whereby the rights and property interests of appellants would be further invaded and appellants would suffer further irreparable damage. [R. 19-20.] Under these circumstances appellants were put to the necessity of instituting said prohibition proceedings.

The admitted facts, in addition to the above, showing that petitioners have no plain, speedy and adequate remedy at law, are set forth. [R. 25-27.] *We especially call attention to the fact that plaintiffs were not required to file, and have not filed, any bond of any sort, and appellants are and will be wholly without recourse for the tremendous loss and damage sustained and to be sustained by them.* [R. 25.] *Section 14b of the statute provides that no temporary or permanent injunction granted thereunder can be stayed on appeal either by the giving of a bond or otherwise.* So that if the statute as construed and applied to appellants is repugnant to rights guaranteed to appellants by the Fourteenth Amendment of the Federal Constitution and appellants are successful on this appeal they will have no recourse whatever for the damages they have each already sustained, or for the great irreparable damage they will sustain in the future. [R. 25-27.] The effect of the preliminary injunction, by its

very existence, casts a shadow over the rights of appellants to the full and exclusive enjoyment of their property which no stay in the operation of said orders could remove, for the very existence of such orders renders their properties less valuable, less usable and less salable. [R. 26.] (See *Jacobsen v. Superior Court,* 192 Cal. 319, 330-2.)

The sole authority under which the action in the Superior Court was instituted and under which said court was acting, is derived from the provisions of sections 8*b*, 8*d*, 9 and 14*b*, and particularly sections 8*b* and 14*b* of the California statute hereinabove referred to. [R. 20.] *The term "unreasonable waste of natural gas" did not at the time of the enactment of the 1929 amendment to the state statutes involved prohibiting the "unreasonable waste of natural gas," have, and has never since acquired, any established or settled meaning by usage or custom.* [R. 21.]

The Particulars in Which the California Statute, as Construed and Applied Against Appellants, Is Claimed in the Petition for Writ of Prohibition to Be Repugnant to the Constituton of the United States, and in Which the Statute, as Construed and Applied Against Appellants, Deprives Appellants of Rights, Privileges and Immunities Under the Constitution of the United States, and the References to the Record Showing They Were Specially Set Up and Claimed by Appellants.

At pages 20-25 of the petition for writ of prohibition filed in the lower court [R. 20-25] are set forth the particulars in which the state statute involved violates the Federal Constitution and in which the Superior Court ex-

ceeded, and threatens to exceed, its jurisdiction in enforcing said statute, or proceeding further thereunder against appellants. Said petition includes, by reference [R. 24, clause *e*], the grounds of unconstitutionality of the statute under the Federal Constitution, as well as the rights asserted under the Federal Constitution as they are set forth in the answer filed by petitioners in the Superior Court (the allegations and denials of which are incorporated and realleged in the petition for writ of prohibition, R. 6), and also in the demurrer to the complaint [R. 98] and in the points and authorities annexed thereto. [R. 114.]

These federal questions, and the particular references to the record showing that they were raised, specially set up and claimed, and called to the attention of the lower courts, may be summarized as follows:

1. The California statute, under the supposed authority of which the action in the Superior Court was instituted and the orders of that court were made, is so vague, uncertain and indefinite, as to the definition, guide or standard of what constitutes "unreasonable waste of natural gas," that it violates the "due process" clause of the Fourteenth Amendment of the United States Constitution [R. 21, 99, 115-116, 118, 121, 336, 357], and therefore the orders of the Superior Court complained of, construing and applying the statute to appellants, and the enforcement thereof, are in excess of the jurisdiction of said Superior Court. [R. 20-25, 123; see Assignment of Errors Nos. 1, 7, 8 9; R. 676-680.]

2. The California statute as construed and applied to and sought to be enforced against appellants, and also

the rendition and enforcement of the preliminary injunction of the Superior Court, deprives appellants of their property without "due process" of law, in violation of the Fourteenth Amendment of the United States Constitution, and is in excess of the jurisdiction of said court;

(a) In that, under the uncontradicted and admitted facts, each of appellants' oil wells is being efficiently operated at a proper and reasonable gas-oil ratio for each well and for the field, and so as not to injuriously affect the rights or operations of other operators or owners in the same field, and the admitted sole purpose of the decrease in the allowed gas production to appellants required by them in the efficient production of oil as aforesaid is to reserve such natural gas in the ground for light, heat and power for the benefit of the general consuming public, and in that this cannot be accomplished without compensation, nor without a condemnation suit in the exercise of the power of eminent domain. [R. 23, 99, 119-121, 157-159, 164, 178-183, 6-par. 4, 336-357; see Assignment of Errors Nos. 2, 3, 4, 5, 9, 10, 14, R. 676-682.]

(b) In that, under the admitted facts, the extent of the invasion of appellants' property rights is so great, so arbitrary, so unreasonable, so oppressive, and so unrelated to and in excess of the power of the state, that it cannot be sustained under the police power of the state, and the due process clause of the Federal Constitution requires the exercise of the power of eminent domain. [R. 6, 23-24, 100, 159-164, 166, 180, 183, 336-357; see Assignment of Errors Nos. 2, 3, 4, 5, 10, 12, 14, 15, R. 676-685.]

(c) In that the *"prima facie"* evidence clause of the statute violates the due process clause of the Fourteenth Amendment. [R. 24, 115, 124, 125; see Assignment of Errors No. 13, R. 683.]

3. The California statute as construed and applied to and sought to be enforced against appellants, impairs the obligations of the oil and gas lease contracts of appellants requiring diligent drilling and operation, and in two instances to "maximum capacity," under penalty of forfeiture, all in violation of section 10 of Article I of the United States Constitution. [R. 24, 6, 100, 120, 178, 182; see Assignment of Errors No. 6, R. 678.]

4. The statute of California as construed and applied to and sought to be enforced against appellants, denies to appellants the "equal protection of the laws" guaranteed to appellants by the Fourteenth Amendment of the United States Constitution. [R. 24, 6, 121-2, 160-166; see Assignment of Errors Nos. 7, 8. 1, R. 676-679.]

5. The necessary effect of the preliminary injunction against appellants is to deprive appellants of their property without due process of law, and to deny them the equal protection of the laws, all in violation of the Fourteenth Amendment. [R. 23-24, and pages cited under items 1 to 4, above; see Assignment of Errors 8 to 15, R. 679-685.]

Not only do the foregoing references to the *record itself* show that these federal questions were presented to the lower court in the petition for writ of prohibition, as well as in the proceedings in the Superior Court forming the basis for the writ of prohibition, but the record also includes a certificate of the lower court [R. 714],

and also a stipulation of counsel [R. 718], to the effect that each of the federal questions set forth in the assignment of errors in this court [R. 676] was duly, regularly, properly and timely raised and specifically set up and claimed by appellants in the lower court, all in accordance with the laws, rules of court and the practice prevailing in California, and the validity of the statute was sustained as against each and all of the various claims of appellants of its being repugnant to the Constitution of the United States. [R. 714-717.] This certificate of the court recites:

> "That each of said questions was duly considered by this court on its merits, and the contentions of appellants respecting each of said questions were each and all denied; that a decision upon each of said questions and claims of the appellants was necessary to the decision and judgment of this court filed November 29, 1930." [R. 716.]

Although appellants are not dependent on such certificate, it may be considered and should remove all doubt. (*Consolidated Turnpike Co. v. Norfolk etc. Ry. Co.,* 228 U. S. 596, 57 L. Ed. 982; *Marvin v. Trout,* 199 U. S. 212, 50 L. Ed. 157.) The record also contains a topical index of appellants' brief in the lower court [R. 724], the petition for rehearing [R. 364] and the petition for hearing by the Supreme Court of California [R. 487], all showing these federal questions again raised. The California practice does not recognize an assignment of errors; it merely requires a "printed" brief containing the points and authorities, "relied on," with a "topical index" if same is more than 30 pages long. (See *New York ex rel. Bryant,* 278 U. S. 63, 68, 73 L. Ed. 184, 187.)

The opinion of the lower court itself, which for present purposes is deemed part of the record (*N. Y. ex rel. Bryant, supra*) shows that that court considered these federal questions as properly raised [R. 333-6], and expressly passed on all of them adversely to appellants' claims [R. 336], except as to one or two, where such was the necessary effect of the judgment. (See decisions cited under Subdivision "D" hereof, *post.*)

We quote the following brief extract from the opinion of the lower court:

> "The arguments of the petitioners may be grouped into the following propositions: First: The act deprives petitioners of property without just compensation and without due process of law. Second: The statute is void for uncertainty and for failure of the legislature to define a standard of conduct. Third: The enactment permits the use of gas for lifting purposes in a reasonable proportion to the amount of oil produced and that the uncontroverted evidence shows no other or greater use and for that reason the court was without jurisdiction to grant the temporary injunction." [R. 336.]

The lower court undoubtedly understood that the first point related to the invalidity of the statute under the "due process" clause of the Fourteenth Amendment of the Federal Constitution, and upheld the statute against this contention, as shown by the following extracts from the opinion:

> "Turning then to the first contention, *it is asserted that the act is violative of the Fourteenth Amendment to the Federal Constitution* * * *." [R. 337.]
>
> "* * * We are, therefore, irresistibly led to conclude that the statute here involved * * * *does not deprive the petitioners of property without just compensation or due process of law but rather*

falls within the legislative authority of the state with the wisdom of which we cannot be concerned." [R. 346, 352.]

The lower court undoubtedly understood the second point discussed in the opinion relating to the alleged invalidity of the statute for lack of an ascertainable or sufficient standard or measure of conduct, referred to its invalidity under the "due process" clause of the Fourteenth Amendment of the United States Constitution. This is obvious from the federal questions raised and the many decisions of this court on the subject of the certainty and definiteness required of statutes to satisfy the "due process" clause which were presented to the lower court by appellants. [R. 724-726, 367, 369.] Included amongst these cases were *Cline v. Frink Dairy Co.*, 274 U. S. 445; *Connally v. General Construction Co.*, 271 U. S. 385; *United States v. Pennsylvania R. Co.*, 242 U. S. 208. The topical index and index of cases cited in the lower court also demonstrate that the other federal questions which the record shows were raised were argued and insisted upon by appellants. [R. 724-729, 364-370, 487-498.] In view of the fact that the appeal practice in California does not provide for the assignment of errors as is the case with reference to the practice of appellate courts in most states, but merely requires that points be raised in briefs filed, it is appropriate for this court to examine the topical index for such purpose, if there should be any doubt at all in the court's mind about the federal questions raised being presented to the state court. (See *New York ex rel. Bryant*, 278 U. S. 63, 68.) While the lower court did not expressly mention or discuss in its opinion some of the federal questions raised they were

necessarily decided adversely to appellants' contention and the statute upheld against such contention. (See citations under *D, post.*)

D.

Citation of Cases Believed to Sustain Jurisdiction.

1. The action of the District Court of Appeal of California, Second Appellate District, Second Division, in denying appellants' petition for a peremptory writ of prohibition (that court having denied a timely [R. 363½] petition for a rehearing, and the Supreme Court of California having denied a timely petition for a hearing by that court [R. 486]), was a final judgment in a suit in the highest court in the state in which a decision in the suit could be had. (*Napa Valley Electric Co. v. United States,* 251 U. S. 366; *Pacific Gas etc. Co. v. Police Court,* 251 U. S. 22; *Appleby v. Delaney,* 271 U. S. 403; *Norfolk Turnpike Co. v. Virginia,* 225 U. S. 364.)

The judgment of the lower court (District Court of Appeal of California) became final, for purposes of review in the Supreme Court of the United States, upon the date of the denial of the petition for hearing by and transfer to the Supreme Court of California. (See cases above cited, and *Citizens Bank v. Opperman,* 249 U. S. 448; *Ohio Public Service Co. v. State of Ohio,* 247 U. S. 12.)

2. Prohibition is a distinct "suit," and a judgment finally disposing of it, even though it does not determine the merits of the principal suit but only the question of whether the court in which that suit is brought is acting without or in excess of its jurisdiction, is a "final" judg-

ment within the meaning of section 237(a) of the United States Judicial Code (Act of Feb. 13, 1925, ch. 229, Sec. 1, 43 Stat. 937, U. S. Code, Title 28, Sec. 344), and also under the statutes of California. (*Weston v. Charleston*, 2 Pet. 449, 463-5; *Mt. Vernon-Woodbury Cotton Duck Co. v. Alabama Interstate Power Co.*, 240 U. S. 30, 31; *Pacific Gas & Electric Co. v. Police Court*, 251 U. S. 22; *Missouri v. Taylor*, 266 U. S. 200; *Michigan Central R. Co. v. Mix*, 278 U. S. 492; *California Code of Civil Procedure*, Secs. 577, 1102-1105, 1088, 1094, 52-*a*.) It is immaterial whether the lower court was exercising original or appellate jurisdiction. (*Hartman v. Greenhow*, 102 U. S. 672, and cases above cited.)

3. Whether the question of the validity of the state statute under the Federal Constitution was properly raised in the lower court by petition for writ of prohibition, ordinarily is a question of state practice, and if the federal right asserted is expressly or necessarily passed upon and denied by the highest court of the state in which a decision in the suit could be had, this court has jurisdiction to review the judgment of the state court. (*North Carolina R. Co. v. Zachary*, 232 U. S. 248; *Hill v. Smith*, 260 U. S. 592; *Chicago etc. Co. v. Perry*, 259 U. S. 548.)

In this case, on account of the Federal Questions of whether the statute under which the suit in the Superior Court was brought, is void under the "due process" and "equal protection" clauses of the Fourteenth Amendment for lack of an ascertainable or sufficiently definite standard of conduct, and for the various other reasons asserted, the jurisdiction of the court involves such Federal Questions, and is dependent on their determination. (See cases, *post*.)

Where the state court deems the federal question before it, actually entertains it, and decides it adversely to the federal right asserted, the United States Supreme Court has jurisdiction. (*Rogers v. Hennepin County,* 240 U. S. 184.)

The lower court having impliedly held that prohibition is the proper remedy, the question of constitutionality of the statute involved and of the order of the Superior Court applying such statute to appellants by proceeding, without questioning the procedure, to decide the federal question of whether the statute is repugnant to the due process clause of the Federal Constitution for lack of an ascertainable or sufficiently definite standard or measure of what is prohibited by inhibition against "the unreasonable waste of natural gas" [R. 336-357], and also the federal question of whether the statute as applied to appellants operates to take appellants' property for a public use without compensation and without due process of law in violation of the Fourteenth Amendment [R. 357-361], the issue of whether these federal questions were properly raised by writ of prohibition proceedings is not open to question in this court. (*North Carolina R. Co. v. Zachary,* 232 U. S. 247, 257; *Home Ins. Co. v. Dick,* 281 U. S. 397, 401; *Hill v. Smith,* 260 U. S. 592, 594; *Rogers v. Hennepin,* 240 U. S. 184, 188.) A non-federal ground (if such it were) which might have been considered by the state court but was not, is of no consequence and cannot be raised in this court to defeat its jurisdiction. (*Grayson v. Harris,* 267 U. S. 352-358.)

4. In truth, the lower court was correct in assuming that prohibition is appellants' proper remedy. Many Cali-

fornia decisions establish the rule that *a court which is proceeding in violation of the express or implied mandate of a constitution or statute, or which grants to or takes away from a party rights which a constitution or statute expressly or impliedly provides shall not be granted or taken away, is exceeding its jurisdiction, even though it otherwise has jurisdiction of the subject matter and the parties, and prohibition is the proper remedy.* Such action constitutes more than mere error in the exercise of jurisdiction, for, under the authorities, the court thereby exceeds its jurisdiction. (*Jacobsen v. Superior Court,* 192 Cal. 319, 330-2; *Baar v. Smith,* 201 Cal. 87, 100-102; *McClatchy v. Superior Court,* 119 Cal. 413, 420; *Tonningsen v. Odd Fellows' Cem. Assn.,* 60 Cal. App. 568; *Weintraub v. Superior Court,* 91 Cal. App. 763; *Ambassador Petroleum Co. v. Superior Court,* 208 Cal. 667, 671; *Long v. Superior Court,* 102 Cal. 449, 453, 455.) Many other cases might be cited. In the second and last of these cases the trial court granted "too much" relief. The *Jacobsen* case involved a *preliminary injunction* in a suit in equity over which the court had jurisdiction of the parties and the subject matter, but same was held to be in excess of its jurisdiction and not mere error, in that it deprived the defendant of his property for public use without just compensation and without due process of law. The similarity of this case is great; the case is almost on all fours. The court also held that the remedy by appeal or *supersedeas* under facts (192 Cal. 330) almost identical to those alleged in the case at bar [R. 25-27] did not afford a plain, speedy or adequate remedy. (192 Cal. 330.)

5. The granting of a writ of prohibition to a party injuriously affected bringing himself clearly within the law is not discretionary with the court in California, but is a matter of right *ex debito justitiae.* (*Havemeyer v. Superior Court,* 84 Cal. 327, 401.)

6. That the federal questions involved were properly raised by a writ of prohibition is also in accord with the previous decisions of this court (*Mt. Vernon-Woodberry etc. Co. v. Alabama I. P. Co.,* 240 U. S. 30, 31-32), where this court refused to dismiss a writ of error from a judgment of the highest court of Alabama denying a writ of prohibition involving a state statute authorizing condemnation proceedings which it was alleged contravened the Fourteenth Amendment in that the purpose of the condemnation was not a public one. (See, also: *Missouri v. Taylor,* 266 U. S. 200; *Pacific Gas & Electric Co. v. Police Court,* 251 U. S. 22; *Weston v. Charleston,* 2 Pet. 449; *Chicago, B. & Q. R. Co. v. Chicago,* 166 U. S. 226, 234-236; *Napa Valley Electric Co. v. Railroad Commission,* 251 U. S. 366; *New York ex rel. Bryant v. Zimmerman,* 278 U. S. 63, 65; *Ex parte Yarbrough,* 110 U. S. 651.)

The Fourteenth Amendment and the other provisions of the Federal Constitution invoked by appellants are directed to state action by its legislative, executive or *judicial* branches. (*Brinkerhoff-Faris Trust & Sav. Co. v. Hill,* 281 U. S. 673; *Home Teleph. & Teleg. Co. v. Los Angeles,* 227 U. S. 278; *Scott v. McNeal,* 154 U. S. 34; *Ex parte Virginia,* 100 U. S. 339, 346-347.) These constitutional provisions not only grant rights to the parties litigant which it is the *duty* of state courts to enforce, but are directed to state action through its judicial branch,

the mandate of which that branch has no *power* to ignore. (See above California and federal citations.) To hold otherwise would put the state court above the Federal Constitution. No state can give to its courts power to violate the Federal Constitution. (*Pennsylvania R. Co. v. Public Service Commission*, 250 U. S. 566.) This prohibition against judicial action by a state court is even stronger than when imposed by a state statute or constitution. Under the decisions above cited it makes no difference if the state court be sitting as a court of equity, or if the order in violation of the mandate of the Federal Constitution be a preliminary injunction. (*Jacobsen v. Superior Court, supra.*) In fact, the sole authority of the Superior Court was derived from the statute. [R. 363, p. 22 of Supplement to Appellees' Brief.]

The preliminary injunction invading appellants' asserted federal rights was just as disastrous as, and for all practical purposes is, a final injunction. "The substance and not the shadow determines the validity of the exercise of the power." (*Postal Tel. etc. Co. v. Adams*, 155 U. S. 689, 698, 39 L. Ed. 311, 316.) Though the court may possess jurisdiction of a cause, of the subject matter and of the parties, it is still limited in its modes of procedure and in the extent and character of its judgments; there must be jurisdiction to give the judgment rendered, as well as to hear and determine the case. A state court has no power to enforce an unconstitutional statute or to render or enforce a judgment in violation of the Constitution under the admitted facts. The mere form of the proceeding instituted against the owner, even if he be admitted to defend, cannot convert judicial action into

due process of law if the necessary result be to deprive him of his property without compensation.

Chicago, B. & Q. R. Co. v. Chicago, 166 U. S. 226, 234-236;

Windsor v. McVeigh, 93 U. S. 274, 282;

Ex parte Reed, 100 U. S. 13;

Jacobsen v. Superior Court, 192 Cal. 319, and other cases above cited, and cases therein referred to.

7. Since, therefore, the lower court not only correctly assumed that the federal questions hereinafter discussed were properly before it for decision, and actually decided them, but also since such federal questions presented on this appeal were necessarily involved, and were controlling in its decision, this court's jurisdiction is complete. (*Grubb v. Public Utilities Commission,* 281 U. S. 470, 477-8; *New York ex rel. Bryant v. Zimmerman,* 278 U. S. 63; and cases above cited.) The lower court, in reaching its decision that the Superior Court had "jurisdiction to determine what is an unreasonable waste" of natural gas, actually decided, and also had to decide, (a) the federal question presented on this appeal, whether the statutory prohibition against "unreasonable waste of natural gas" is uncertain and devoid of a sufficient standard or measure of the conduct to satisfy the due process clause of the Fourteenth Amendment; and (b) the other federal questions presented on this appeal, *viz.:* whether under the admitted facts presented in the petition for writ of prohibition the statute, particularly as construed and applied and sought to be enforced against appellants, is in conflict with specific clauses of the Federal Constitution and whether the lower court properly denied the rights asserted by appellants thereunder.

Appellants are therefore entitled to have the federal questions presented decided by this court on their merits.

8. "When a party appeals to this court for the protection of rights secured to him by the Federal Constitution, the decision is not to depend upon the form of the state law, nor upon its declared purpose, but rather upon its operation and effect as applied and enforced by the state; and upon these matters this court cannot, in the proper performance of its duty, yield its judgment to that of the state court." (*Coppage v. Kansas*, 236 U. S. 1, 14-15, 59 L. Ed. 441, 446; *Corn Products Refining Co. v. Eddy*, 249 U. S. 427, 63 L. Ed. 689; *Louisianan R. & Nav. Co. v. Behrman*, 235 U. S. 164, 171, 59 L. Ed. 175.) In the case last cited this court said that in determining what effect has been given to a statute

> "This court is not limited to the mere consideration of the language of the opinion of the state court" (p. 171).

9. A decision of the highest court of the state against the contention that the operation of the state statute involved as construed and applied to an appellant is to deprive him of his property without due process of law, involves a federal question properly raised by appeal rather than by *certiorari*. (*Darling v. Newport News*, 249 U. S. 540, 63 L. Ed. 79; *Merchants Nat'l Bank v. Richmond*, 256 U. S. 635, 65 L. Ed. 1135.) This is also true if the necessary effect of the judgment is to deny a federal right claimed, even though the ruling be not put upon that ground.

> *New York ex rel. Bryant v. Zimmerman*, 278 U. S. 63, 67, 73 L. Ed. 184, 187.

10. This court on writ of error to or appeal from the state court, in a case where the issue is whether a state statute

in its application to facts which are set out in the pleadings and are admitted by the demurrer violates the Constitution, must examine and analyze the facts as averred and draw its own inferences as to their ultimate effect, and is not bound by the conclusion of the highest state court in this regard.

Truax v. Corrigan, 257 U. S. 312, 324-325, and cases there cited;

Merchants National bank v. Richmond, 256 U. S. 635, 638.

11. It is also the duty of this court on appeal or writ of error proceedings to a state court to inquire into the facts where such inquiry is essential to the enforcement of a right suitably asserted under the Federal Constitution (*Beidler v. South Carolina Tax Commission*, Advance Opinions, Case No. 2, Oct. Term 1930, 75 L. Ed. 69, 70, and cases there cited), or where it is claimed that a federal right set up has been wrongly denied and in which the state court has put its decision on a finding that the asserted federal right has no basis in point of fact, or when the conclusion of law and findings of fact are so intermingled as to make such inquiry necessary, in order to pass upon the federal question involved (*Truax v. Corrigan, supra*), or where there is ground for the insistence that a federal right has been denied as the result of a finding that is without support in the evidence. (*Union Pacific R. Co. v. Public Service Commission*, 248 U. S. 67, 69; *Interstate Amusement Co. v. Albert*, 239 U. S. 560.) When the basis of facts upon which the state court rests its decision denying the asserted federal right has no support in the record, it is the duty of this court to review and correct the error. (*Postal Tel. Cable Co. v. Newport*, 247 U. S.

464; *Ancient Egyptian Arabic Order v. Michaux*, 279 U. S. 737, 745-746.)

12. Legislation not limited to the regulation of private correlative rights in a common source of supply of oil or gas by preventing waste or other conduct by one or more of them which injuriously affects the correlative rights of others in the common source of supply but which is directed to the curtailment of production itself or to commercial conservation for the benefit of the consuming general public, is repugnant to the "due process" clause of the Fourteenth Amendment. (*Ohio Oil Company v. Indiana*, 177 U. S. 190; *Lindsley v. Natural Carbonic Gas Co.*, 220 U. S. 61, 73-77; *West v. Kansas Nat. Gas Co.*, 221 U. S. 229, 246; *Bacon v. Walker*, 204 U. S. 311; *Walls v. Midland Carbon Co.*, 254 U. S. 300.)

(See analysis of these cases under Point C of Appellants' Brief in Opposition to Motion to Dismiss or Affirm.)

The denial by this court of *certiorari*, in the two cases cited at page 30 of "Appellees Brief on Motion to Dismiss or Affirm," imports no opinion by this court on the merits of the case (*U. S. v. Carver*, 260 U. S. 482) and does not give either case the character of a precedent (*Hamilton Brown Shoe Co. v. Wolff Bros. & Co.*, 240 U. S. 482). Besides those cases are readily distinguishable.

The Kansas case involved a city ordinance limiting the number of oil wells in a city block and was sustained on account of the danger of fire, noise and other injuries to adjoining property. The city might have prohibited all oil wells within the city limits.

The Texas case was a suit against members of the Railroad Commission personally for damages arising out of an order limiting the number of oil wells on a long narrow strip under circumstances when more wells would injuriously affect the right of adjoining owners. It was held that the members of the commission were not personally liable.

13. This being the extent of the state's legislative power, if the statute goes further than is required for this purpose, and attempts through its legislative or judicial branch to deprive all the surface owners or one or more of them of the use and enjoyment of their property or to prohibit conduct by one or more owners or operators not injurious to the rights of other owners or operators in the same field,—it exceeds the limits of the state's power of regulation, and goes "too far," and it constitutes a "taking" of private property in violation of the due process clause of the Fourteenth Amendment (*West v. Kansas Natural Gas Co., supra; Penn. Coal Co. v. Mahon,* 260 U. S. 393, 413-416; *Buchanan v. Warley,* 245 U. S. 60; *Minnesota v. Barber,* 136 U. S. 313; *Herminghaus v. So. Cal. Edison Co.,* 200 Cal. 81, 107, 112, 115-118—on certiorari, 274 U. S. 728, 275 U. S. 486-487; *Hathorn v. Natural Carbonic Gas Co.,* 194 N. Y. 326; *Ex parte Kelso,* 147 Cal. 609.)

14. Neither the oil nor the gas produced in Santa Fe Springs field has been dedicated to a public use. If any such gas had been furnished to a public utility, this would not make the producer a public utility (*Allen v. Railroad Com.,* 179 Cal. 68; *Marin County v. Town of Sausalito,* 168 Cal. 587; *Associated Pipe Line Co. v. Railroad Com.,*

176 Cal. 518; *Beasley v. Engstrom,* 31 Idaho 14, 16 Pac. 1145.) But appellants have not supplied any such utility with gas. [R. 161.] Moreover, *the business of producing oil or gas is not affected with a public interest (Williams v. Standard Oil Co.,* 278 U. S. 235. 240; *Tyson & Bro. v. Banton,* 273 U. S. 418.) In the *Tyson* case the court said:

> "A business is not affected with a public interest merely because it is large or because the public are warranted in having a feeling of concern in respect of its maintenance. Nor is the interest meant such as arises from the mere fact that the public derives benefit, accommodation, ease or enjoyment from the existence or operation of the business." (273 U. S. 430.)

15. These cases also show that the legislative declaration of the public interest such as is found in sections 8b and 21a of the statute here involved is not sufficient and cannot authorize the invasion of private rights. (See, also, *McFarland v. American Sugar Ref. Co.,* 241 U. S. 79, 80; *Herminghaus v. So. Cal. Edison Co.,* 200 Cal. 81, 115; *San Bernardino v. Riverside,* 186 Cal. 7.)

16. An analysis of the cases shows that the public interest in the privately owned natural resources of the state is limited to a proper regulation of the private correlative rights of owners in a common source of supply by preventing actual waste or other conduct by any one or more of them injuriously affecting the rights of other surface owners in the common source of supply. Mr. Chief Justice Hughes is evidently of this view for he is quoted in the report of the Federal Oil Conservation Board of May 27, 1926, at page 12, as giving the following legal opinion to the American Petroleum Institute:

"It has already been pointed out to the board that the Legislatures of oil-producing states have enacted various laws of a regulatory sort intended to prevent waste. *It would not be safe, however, to infer that laws which were not appropriately designed to prevent improper methods in extracting the oil, or to protect the interest of proprietors drawing from a common reservoir so that the action of one should not work a deprivation of the rights of others, but were directed to the prevention or curtailment of production itself, would be sustained in the absence of compensation to the owner who was thus deprived of the use of this property.*"

As stated by this court in *West v. Kansas Natural Gas Co., supra:*

"* * * The natural resources of a state may be other than natural gas; for example, may be timber and coal and iron and other metals; but it is contended that the right of conservation extends to these, and the broad statement of the first question is qualified in the argument by the properties of natural gas and the limitation of its supply. This, it is contended, gives a range to the police power which otherwise it would not possess. * * *

"We have reviewed the cases at some length, as they demonstrate the unsoundness of the contention of appellant based upon the right to conserve * * * the resources of the state, and that the statute finds no justification in such purpose for its interference with private property * * *." (221 U. S. 229, 252, 260.)

17. Applying these principles to the *admitted and undisputed facts of the case at bar,* there can be no doubt but that the statute as construed and applied to appellants constitutes a taking of appellants' property for a public use without compensation, and a taking without due process of law, in violation of the Fourteenth

Amendment. It appears from these admitted facts that each of appellants' oil wells is operated with the utmost efficiency and at their optimum gas-oil ratio [R. 8], which is amongst the lowest in the field, and is also "so operated that it does not injuriously affect the operations of others owning and/or operating wells in the field" [R. 13]; also that appellants are not taking an undue or unjust proportion of oil or gas from the field. [R. 155, 6 par. 4.] It further appears that the sole purpose of the order made under the supposed authority of the statute, decreasing by over 50% the allowed gas production required by appellants in the efficient production of oil and gas as aforesaid, is *"to conserve such gas for the benefit of the general consuming public" for light, heat and fuel.* [R. 23.]

18. The majority rule prevails in California that oil and gas in place are minerals and realty and belong to the owner of the land as long as they are on it or in it or subject to his control. The same can be sold or reserved in place by the owner, and instruments of sale thereof in place are required to be executed with the formalities of a conveyance of real estate and create a corporeal rather than an incorporeal interest and sever the mineral estate from the surface estate (*Isom v. Rex Crude Oil Co.*, 147 Cal. 659; *Graciosa Oil Co. v. Santa Barbara,* 155 Cal. 140; *Duvall v. White,* 46 Cal. App. 305; *Brookshire Oil Co. v. Casmalia etc. Co.,* 156 Cal. 211; *Chandler v. Hart,* 161 Cal. 405, 412-413, 418; *Barlow v. Security Trust & Savings Bank,* 197 Cal. 263, 267; *Payne v. Neuval,* 155 Cal. 46; *Boone v. Kingsbury,* 77 Cal. Dec. 94; *Mills & Willingham, "The Law of Oil and Gas",* 1926 Ed., pp. 20,

22; 1 *Thornton's Law of Oil and Gas,* par. 25a, p. 95; *Texas Co. v. Daugherty,* 107 Tex. 234, 176 S. W. 717, 719-721; *Bodcaw Lumber Co. v. Goode* (Ark.), 254 S. W. 345, 29 A. L. R. 578; *Osborn v. Arkansas Oil & Gas Co.,* 103 Ark. 175 Annotated Note, 29 A. L. R. 586-589).

Since the drainage area of an oil well in Santa Fe Springs field is not more than 50 to 100 feet around the well [R. 6, par. 4, 153, 281] and generally in California the drainage area does not exceed more than 4 or 5 acres (*Chandler v. Hart,* 161 Cal. 405, 418), it makes very little difference whether the title of the surface owner in oil and gas *in situ* beneath his land is absolute or qualified, or is owned by him and his surrounding neighbors jointly, or whether all of the oil and gas deposits in the field are collectively owned by all of the surface owners,—the practical result is the same, for in no event can the private owners thereof be deprived thereof for the purpose of conserving the same for the benefit of the general public. It was said by this court in the *Ohio Oil Co.* case and the *West* case that "the surface owners of the soil, owners of the gas as well, could not be deprived of the right to reduce it to possession without the taking of private property" (221 U. S. 229, 254). (*Buchanan v. Warley,* 245 U. S. 60, 74; *Penn. Coal Co. v. Mahon,* 260 U. S. 393, 414; *Pumpelly v. Green Bay Company,* 80 U. S. 166; *Cleveland, C. C. & St. L. R. Co. v. Backus,* 154 U. S. 439; *Branson v. Bush,* 251 U. S. 182; *Terrace v. Thompson,* 263 U. S. 197.)

Under the admitted facts, and under the decisions of this court hereinabove cited, the statute as applied to appellants constitutes a taking of appellants' property

for a public use without compensation and without due process of law, in violation of the Fourteenth Amendment of the United States Constitution.

> "* * * when a party appeals to this court for the protection of rights secured to him by the Federal Constitution, the decision is not to depend upon the form of the state law, nor even upon its declared purpose, but rather upon its operation and effect as applied and enforced by the state; and upon these matters this court cannot, in the proper performance of its duty, yield its judgment to that of the state court. St. Louis South Western R. Co. v. Arkansas, 235 U. S. 350, 362." (*Coppage v. Kansas*, 236 U. S. 1, 15.)

19. The extent of the invasion of appellants' property rights is so great, so arbitrary, so oppressive and unreasonable, that it goes too far under the police power of the state. Under the admitted facts, the natural gas of which appellants are sought to be deprived by the statute as construed and applied to them, cannot constitutionally be said to be wasted, much less unreasonably wasted. Private property cannot be taken or the owner deprived of the use thereof by mere legislative fiat declaring that to be waste or unreasonable waste which is not such in truth, or because it may be more beneficially used by others having no property rights therein. (*Coppage v. Kansas*, 236 U. S. 1, 16; *Hermingshaus v. Southern California Edison Co.*, 200 Cal. 81; *Pennsylvania Coal Co. v. Mahon*, 260 U. S. 393.) The admitted facts show that the natural gas being produced by appellants is utilized efficiently in the useful and nowise harmful production of oil at a reasonable gas-oil ratio for each well and also for the field [R. 8-9, 13]; that appel-

lants' operations are not injuriously affecting the rights of other owners or operators in the field [R. 13, 6 par. 4, 126-7], and do not result in an undue or disproportionate taking of oil or gas by appellants [R. 6, 155]; that the gas so produced by appellants is utilized a second time, in the manufacture of casinghead gasoline [R. 12]; that so much of the remaining residual dry gas as can be used by appellants for field and other purposes is so used, and so much as can be sold is sold [R. 12]. The remainder admittedly cannot be sold or given away, and has no value [R. 12]. It cannot be stored except at exorbitant and prohibitive cost. Having been already utilized over and over again, and having no further use or value, it is necessarily permitted to escape into the air [R. 12-13]. Such remaining residual dry gas as is thus blown to the air, having been reduced to possession in the pipes of appellants and later in its casinghead gasoline plant, is, at the time of its release from the casinghead gasoline plant, the absolute private property of appellants, the same as any other article of commerce. (*West v. Kansas Nat. Gas Co.*, 221 U. S. 229, 255.) To permit the state to deprive appellants of the right to the use thereof under these circumstances and for such highly beneficial purposes as aforesaid, admittedly under conditions not injuriously affecting the rights of other owners or operators in the field, or solely for the purpose of conserving the same in the ground for the general consuming public having no property rights in the field, certainly goes too far under the police power and requires the exercise of the power of eminent domain, with just compensation. (*Pennsylvania Coal Co. v. Mahon*, 260 U. S. 393; *Dobbins v. Los Angeles*, 195 U. S. 223; *Lawton v. Steele*, 152 U. S. 133-137;

Buchanan v. Warley, 245 U. S. 60; *Coppage v. Kansas,* 236 U. S. 1; *Herminghaus v. Southern California Edison Co.,* 200 Cal. 81; *Ex parte Kelso,* 147 Cal. 609.)

Considering the lack of, or insignificant, value of the residual remaining dry gas, to make the same the basis of the drastic curtailment of appellants' gas production resulting in a daily loss of $12,500.00 in oil and $3,000.00 in casinghead gasoline, to say nothing of permanent and irreparable injury to wells curtailed, shut in or killed, is certainly to "let the tail wag the dog." (*Foster Fountain Packing Co. v. Haydel,* 278 U. S. 1, 8-9.)

20. The statute involved is void for uncertainty and lack of a sufficiently definite standard of conduct under the due process clause of the Fourteenth Amendment. The cases thoroughly establish that where, as in the case at bar, there is no common law or other background defining by judicial decisions the thing prohibited, and the words used in a statute have not obtained a definite meaning through custom and usage, and where the thing prohibited is new and complex, and does not relate to matters in the every-day life of the average man, the statute is void, because it lacks "due process," in the absence of a definite and certain guide or standard of conduct so that those who are called upon to obey it may know with certainty in advance of court action what is prohibited and what is permitted. Also, because such a statute permits the exercise of arbitrary and discriminatory powers, it violates the "equal protection" clause of the Fourteenth Amendment. *Cline v. Frink Dairy Co.,* 274 U. S. 445 (distinguishing types of cases cited by appellees); *United States v. Cohen Grocery Co.,* 255 U. S. 81 (distinguishing cases); *Small*

Co. v. American Sugar Refining Co., 267 U. S. 233; *Connally v. General Construction Co.*, 269 U. S. 385; *International Harvester Co. v. Kentucky*, 234 U. S. 216; *United States v. Pennsylvania R. Co.*, 242 U. S. 208; *United States v. Reese*, 92 U. S. 214; *Yick Wo v. Hopkins*, 118 U. S. 356; *Weed & Co. v. Lockwood*, 255 U. S. 104; *United States v. Brewer*, 139 U. S. 278. See also: *Ex parte McNulty*, 77 Cal. 164; *Hewitt v. Board of Medical Examiners*, 148 Cal. 590; *In re Clarence Lockett*, 179 Cal. 581; *People v. Pace*, 73 Cal. App. 548; *In re Peppers*, 189 Cal. 682; *United States v. Capital Traction Co.*, 34 App. D. C. 592, 19 Ann. Cas. 68; *Chicago N. W. R. R. Co. v. Dey*, 35 Fed. 866 (leading case, opinion by J. Brewer); *Tozer v. United States*, 52 Fed. 917 (a leading case); *Louisville & Nashville R. R. Co. v. Commonwealth*, 99 Ky. 135; *Standard Chem. & Metals Corp. v. Waugh Chem. Co.*, 231 N. Y. 51, 131 N. E. 566; *Detroit Creamery Co. v. Kinnane* (Mich.), 264 Fed. 845; *United States v. Bernstein*, 267 Fed. 295; *Cook v. State*, 26 Ind. App. 278, 59 N. E. 489; *In re Schmolke*, 199 Cal. 42; *State v. Board of Canvassers*, 159 Wis. 216, 150 N. W. 542; *In re Toyu Kee*, 12 Haw. 164; *State v. Diamond*, 27 N. M. 477, 20 A. L. R. 1527; *Xenia v. Schmidt*, 101 Ohio St. 437, 130 N. E. 24; *Commonwealth v. Maletsky*, 203 Mass. 241; *Anderson v. Manchester Fire Assn.*, 59 Minn. 182, 60 N. W. 1095; *Dowling v. Lankershire Ins. Co.*, 92 Wisc. 63, 65 N. W. 738; *United States v. Sharp*, Fed. Cas. 16,264, 27 Fed. Cas. 1041.

That the rule applies to civil, as well as criminal, statutes, see: *Cline v. Frink Dairy Co.*, 274 U. S. 445, 463; *Small v. American Sugar Refining Co.*, 267 U. S. 233;

Standard Chem. etc. Corp. v. Waugh, 231 N. Y. 51, 131 N. E. 566; *Hewitt v. Board of Medical Examiners*, 148 Cal. 590.

21. The so-called "rule of reason" does not afford a valid statutory standard of conduct under the Fourteenth Amendment. The word *"reasonable"* (even if not used with "waste," which is equally uncertain and vague) is uniformly held not to be a sufficiently definite standard of conduct, except where used in connection with a subject having a judicially determined or common law meaning, as in the restraint of trade cases and the later reasonable rate cases, or where used in reference to a simple subject, as in the speed cases,—where a person of ordinary intelligence from common and everyday experience is familiar with what is reasonable.

Cline v. Frink Dairy Company, 274 U. S. 445, ("reasonable profit" in Anti-trust Act. The court distinguishes the speed cases, and other types of cases).

United States v. Cohen Grocery Co., 225 U. S. 81, ("unjust or unreasonable rate of charge" in handling or dealing in or with any necessities of life—distinguishing other types of cases).

International Harvester Co. v. Kentucky, 234 U. S. 216, 232-233, ("market value under fair competition, and under normal market conditions").

United States v. Pennsylvania R. Co., 242 U. S. 208, (furnishing tank-cars "upon reasonable request and reasonable notice").

Tozer v. United States, 52 Fed. 917 (opinion by J. Brewer—prohibiting undue and unreasonable preferences and advantages between shippers).

Louisville etc. R. R. Co. v. Commonwealth, 99 Ky. 132, 35 S. W. 129, (prohibiting from charging "more than a reasonable or just rate").

Schaezlein v. Cabaniss, 135 Cal. 466, (requiring the sanitary condition of the workshop or factory "to be reasonably good").

In re Williams, 74 Cal. App. 331 ("reasonable number of teachers" in public dance halls).

See also other cases above cited involving standards not nearly so uncertain and complex as the statute here involved.

22. The rule that the construction of a state statute by the highest court of the state is accepted by this court, does not apply when the state construction is conflicting, uncertain or unsettled. In such a case this court will construe the statute for itself. (*Concordia Ins. Co. v. Bryan*, Case No. 278, Oct. Term 1930, 75 L. Ed. 387, 391; *Edward Hines Yellow Pine Trustees v. Martin*, 268 U. S. 458; *Portneuf-Marsh Valley Canal Co. v. Brown*, 274 U. S. 630; *Burgess v. Seligman*, 107 U. S. 20.) The construction of the statute as involved in the three opinions by the highest courts of the state is so conflicting and uncertain that this court should adopt its own view as to the standard or measure of unreasonable waste of gas prohibited [R. 333; see analysis and comparison of opinions under point *G* of appellants' brief in opposition to dismiss or affirm accompanying this statement.]

23. The total invalidity under the United States Constitution of section 8d of the statute, upon which the state construction is based [R. 350-2, Appendix B], renders the state construction without merit and also re-

quires this court to adopt its own view of the statute. Section 8d on its face is repugnant to the due process and equal protection clauses of the Fourteenth Amendment. It provides that at the conclusion of the hearing and proceedings before the supervisor of oil and gas therein provided for, he shall make an order, and expressly authorizes the supervisor, even though an unreasonable waste of natural gas is found to exist, to order the discontinuance thereof only "to the extent stated in said order." This gives absolute, arbitrary, unguided and uncontrolled discretion and power to the supervisor to punish his enemies and favor his friends, which is condemned under the Federal Constitution. (*Yick Wo v. Hopkins*, 118 U. S. 356.)

Since this invalid provision of section 8d refers to the order to be made at the conclusion of the hearing therein provided for, with which alone the section deals, the entire section is invalid, even though the statute provides that the invalidity of any provision shall not affect the remaining provisions. (*Williams v. Standard Oil Co.*, 278 U. S. 235.)

24. So, even if the state construction of the statute were not conflicting, uncertain and in doubt, it is inseparably bound up with and interwoven with the Federal questions as to the validity of the statute sought to be invoked against appellants, and this court has jurisdiction, therefore, to inquire into the matter (*Abie State Bank v. Bryan*, Case No. 63, Oct. Term 1930, 75 L. Ed. 420, 424.)

25. In any event, this court should itself consider whether the construction of the statute is not wholly lacking in

merit, in order that it may determine the federal questions and federal rights presented. (*Terre Haute & I. R. Co. v. Indiana ex rel. Ketcham,* 194 U. S. 579; *Ward v. Love County,* 253 U. S. 17; *Baltimore & Ohio R. R. Co. v. Maryland,* 87 U. S. (20 Wall.) 643; *Klinger v. Missouri,* 80 U. S. (13 Wall) 257.) In the first of these cases the state court's decision was based upon an *untenable construction by the statement.*

26. Furthermore, even where this court is bound by a well settled and certain construction by the state courts of a state statute, it is not precluded by their reasoning, but must exercise an independent judgment when called upon to determine the federal question whether the statute as so construed is void for uncertainty under the Fourteenth Amendment and the federal question whether the act as construed and applied to the concrete facts of this case is repugnant to the clauses of the Federal Constitution relied upon by appellants. So whether this court adopts its own view or follows the construction adopted by the lower court or follows the latest decision by the Supreme Court of California, the statute is void for lack of a sufficient standard or measure of what constitutes "unreasonable waste of natural gas" to satisfy the due process clause of the Fourteenth Amendment.

(See argument under point *G* of appellants' brief in opposition to motion to dismiss or affirm.)

27. Since, "Reasoning does not lead back from the occurrence to its cause," to make the occurrence of the escape of natural gas *prima facie* evidence of unreasonable waste is arbitrary, and violates the due process clause of the Fourteenth Amendment of the Federal Constitution.

(*Western & A. R. Co. v. Henderson,* 279 U. S. 639; *Manley v. Georgia,* 279 U. S. 1; *In re Opinion of Justices,* 208 Mass. 619, 94 N. E. 1044; *McFarland v. American Sugar Ref. Co.,* 241 U. S. 79; *Adams v. New York,* 192 U. S. 585; *Re Peterson,* 253 U. S. 300; *State v. Boswick,* 13 R. I. 211; *Bailey v. Alabama,* 219 U. S. 219.)

Manley v. Georgia, supra, is closely in point.

This court there said:

> "* * * A *prima facie* presumption casts upon the person against whom it is applied the duty of going forward with his evidence on the particular point to which the presumption relates. A statute creating a presumption that is arbitrary or that operates to deny a fair opportunity to repel it violates the due process clause of the 14th Amendment. Bailey v. Alabama, 219 U. S. 219, 233, *et seq.,* 55 L. ed. 191, 198, 31 Sup. Ct. Rep. 145. Mere legislative fiat may not take the place of fact in the determination of issues involving life, liberty or property. * * *" (279 U. S. 1, 6.)

> "* * * The statute does not specify the elements of the offense; and so the inference is not restricted to any particular point or specific issue. The facts so to be presumed are as uncertain and vague as the terms 'fraudulent' and 'fraud,' contrasted with 'fairly,' 'legally,' 'honestly,' and 'in accordance with law,' when used to describe the management of a bank. Connally v. General Constr. Co., 269 U. S. 385, 391, 70 L. ed. 322, 328, 46 Sup. Ct. Rep. 126; Cline v. Frink Dairy Co., 274 U. S. 445, 454, 71 L. ed. 1146, 1151, 47 Sup. Ct. Rep. 681.

In California the presumption attempted to be created by the statute does not merely create a temporary inference of fact that vanishes upon the introduction of opposing evidence but, as stated by this court in the *Western & A. R. Co. v. Henderson case, supra,* it "creates an inference

that is given effect of evidence to be weighed against opposing testimony and is to prevail unless such testimony is found by the jury to preponderate" (279 U. S. 639, 644). Section 1833 of the Code of Civil Procedure of California provides: "*Prima facie* evidence is that which suffices for the proof of a particular fact, *until contradicted and overcome by other evidence.*" Section 1961 of the said code provides: "A presumption (unless declared by law to be conclusive) may be controverted by other evidence, direct or indirect; but *unless so controverted the jury are bound to find according to the presumption.*"

28. The statute involved as applied to appellants unconstitutionally impairs appellants' lease contracts. (*Pennsylvania Coal Co. v. Mahon,* 260 U. S. 393; *Cooley's Constitutional Limitations,* 8th Ed., Vol. I, p. 583; *Maverick Oil Co. v. Powell,* 237 U. S. 40; *Swiss Oil Corp. v. Powell,* 199 Ky. 863, 251 S. W. 1007.) (See *Point I* of appellants' brief in opposition to Motion to Dismiss or Affirm.)

29. The statute denies to appellants the equal protection of the laws in a number of particulars. *Truax v. Corrigan,* 257 U. S. 312, 337; *Cotting v. Godard,* 183 U. S. 79; *McFarland v. American Sugar Ref. Co.,* 241 U. S. 79; *Hayes v. Missouri,* 120 U. S. 68; *Yick Wo v. Hopkins,* 118 U. S. 356, 366-7. (See argument and references to the record under *Point J* of appellants' Brief in Opposition to Motions to Dismiss or Affirm.)

30. If one or more of the federal questions raised on the appeal are such that, standing alone, they could be raised only upon certiorari, this court nevertheless has jurisdiction on the appeal to determine same, if the court finds

that the record has been properly brought here upon appeal, because involving the constitutionality of the state statute. (*Prudential Ins. Co. v. Cheek,* 259 U. S. 530, 547.)

If, by any possibility, it can be that appeal was improvidently sought and allowed, then, treating the papers whereon the appeal was allowed as a petition for certiorari, the judgment should be reviewed on certiorari. We sincerely believe that the appeal was properly allowed, and that this court's jurisdiction attaches under section 237*a* U. S. Judicial Code, in that it seeks to review a final judgment in a suit in the highest court in a state in which the decision could be had, where is drawn into question the validity of a state statute on the ground of its being repugnant to the Constitution of the United States and the decision is in favor of its validity.

Respectfully submitted,

ROBERT B. MURPHEY,
ASA V. CALL,
Counsel for Appellants.

Appendix A.

An act to protect the natural resources of petroleum and gas from waste and destruction; relating to the creation of a division in the department of natural resources for the prevention of such waste and destruction; providing for the appointment of a state oil and gas supervisor; prescribing his duties and powers; fixing his compensation; providing for the appointment of deputies and employees; providing for their duties and compensation; providing for the inspection of petroleum and gas wells; requiring all persons operating petroleum and gas wells to make certain reports; permitting and authorizing agreements in the interests of conservation; providing for suits by the director of the department of natural resources in the name of the people of the State of California; providing procedure for arbitration of departmental rulings; creating a fund for the purposes of the act; providing for assessment of charges to be paid by operators and providing for the collection thereof; and making an appropriation for the purposes of this act.

[Approved June 10, 1915; Ch. 718, amended 1917; Ch. 759, amended 1919; Ch. 536, amended 1921; Ch. 912, amended 1929; Ch. 535.]

The people of the State of California do enact as follows:

Section 1. The division of the department of natural resources now or hereafter created for the supervision of petroleum and gas shall be in charge of a chief to be known as "state oil and gas supervisor." [Stats. 1929, p. 925.]

Sec. 3. It shall be the duty of the state oil and gas supervisor so to supervise the drilling, operation and maintenance and abandonment of petroleum or gas wells in the State of California, as to prevent, as far as possible, damage to underground petroleum and gas deposits from infiltrating water and other causes and loss of petroleum and natural gas. It shall be the duty of any person, firm or corporation engaged in operating any petroleum or gas well in this state wherein high pressure gas is known to exist, and any person, firm or corporation drilling for petroleum or gas in any district in this state where the pressure of petroleum or gas is unknown, to equip any such well with casing of sufficient strength, and such other safety devices as may be necessary, in accordance with methods approved by the state oil and gas supervisor, and to use every effort and endeavor to effectually prevent blow-outs, explosions and fires. [Stats. 1929, p. 925.]

Sec. 8. It shall be the duty of the supervisor to order such tests or remedial work as in his judgment are necessary to protect the petroleum and gas deposits from damage by underground water, or to prevent the escape of water into underground formations, to the best interests of the neighboring property owners, and the public at large. The order shall be in written form, signed by the supervisor, and shall be served upon the owner of the well, or the local agent appointed by such owner, either personally or by mailing a copy of said order to the post-office address given at the time the local agent is designated, or if no such local agent has been designated, by mailing a copy of said order to the last known post-office address of said owner, or if the owner be unknown

by posting a copy of said order in a conspicious place upon the property, and publishing the same in some newspaper of general circulation throughout the county in which said well is located, once a week for two successive weeks. Said order shall specify the conditions sought to be remedied and the work necessary to protect such deposits from damage from underground water.

Whenever the supervisor or any deputy makes or gives any written direction concerning the drilling, testing or other operations in any oil or gas well drilled, in process of drilling or being abandoned, and the operator, owner or representative of either, serves written notice either personally or by mail, addressed to the supervisor or his deputy at his office in the district, requesting that a definite order be made upon such subject, the supervisor or his deputies shall, within five days after such notice, deliver a final written order on such subject matter in such manner and form that an appeal may be taken at once therefrom, to the board of oil and gas commissioners of the district created under this chapter. [Stats. 1929, p. 926.]

Sec. 8*b*. The unreasonable waste of natural gas by the act, omission, sufferance or insistence of the lessor, lessee or operator of any land containing oil or gas, or both, whether before or after the removal of gasoline from such natural gas, is hereby declared to be opposed to the public interest and is hereby prohibited and declared to be unlawful. The blowing, release or escape of natural gas into the air shall be prima facie evidence of unreasonable waste. [Stats. 1929, p. 927.]

Sec. 8*c*. Whenever the state oil and gas supervisor shall find that it is in the interest of the protection of

oil or gas from unreasonable waste, it is declared to be lawful for the lessor, lessee, operator or other persons, firms and corporations owning or controlling royalty or other interests in the separate properties of the same producing or prospective oil or gas field, to enter, with the approval of the state oil and gas supervisor, into agreements for the purpose of bringing about the cooperative development and operation of all or a part or parts of such field, or for the purpose of bringing about the development or operation of all or a part or parts of such field as a unit, or for the purpose of fixing the time, location and manner of drilling and operating of wells for the production of oil or gas, or providing for the return of natural gas into the sub-surface of the earth for the purpose of storage or the repressuring of an oil or gas field. Any such agreement shall bind the successors and assigns of the parties thereto in the land affected thereby and shall be enforceable in an action for specific performance. [Stats. 1929, p. 927.]

Sec. 8*d*. Upon complaint being made to the director of natural resources by any person operating in any oil field that there is occurring or threatened an unreasonable waste of gas in any field or fields and a petition is filed with said director requesting that a hearing be held to consider whether such waste is occurring or threatened, and it appearing to the director of natural resources that there is probable cause for such complaint, he shall order the state oil and gas supervisor to hold such a hearing and to fix a time and place therefor; such a hearing may also be ordered by the said director on the application of the state oil and gas supervisor. Notice of the time and place

of said hearing shall be given by publication in a newspaper printed and published in the county in which the unreasonable waste of gas is alleged to be taking place or to be threatened. Said notice shall also specify the commonly accepted name or a general description of the field or locality in which the unreasonable waste of gas is alleged to be taking place or to be threatened. The place of hearing shall be in the county or in any of the counties in which the unreasonable waste of gas is alleged to be taking place or to be threatened. Such publication shall be daily for five (5) days prior to the time of the hearing. The state oil and gas supervisor shall also send notice by mail to each lessor, lessee or operator of any oil and gas well in said field so far as the same may be known to him. No failure to send such written notice shall affect the validity of the proceeding. At such hearing all persons interested shall be entitled to be heard and may present testimony either oral or written. All witnesses shall be sworn and a transcript of the proceedings shall be kept by a stenographic reporter. All the provisions of this act in reference to the subpoenaing of witnesses and the taking of depositions shall be applicable to the hearing before the state oil and gas supervisor. Upon the conclusion of said hearing the state oil and gas supervisor shall determine whether or not there is an unreasonable waste of gas in said field, in existence or threatened, and shall also determine the extent to which the waste of gas therein occurring or threatened is unreasonable. If it shall appear that gas is being produced from any oil well or wells in quantities exceeding a reasonable proportion to the amount of oil produced from the same well or wells, even though it is shown that such excess gas is being used in

the generation of light, heat, power or other industrial purpose and that there is sufficient other gas available for such uses from other wells in the same or other fields in which the gas produced is not in excess of the amount which bears a reasonable proportion to the amount of oil produced from such other wells and that there are adequate gas-pipe-line connections between such other wells and the place of utilization of such gas the state oil and gas supervisor shall hold that such excess production of gas is unreasonable waste thereof if such holding will not cause an unreasonable waste of gas in any other field. If the waste of gas be found unreasonable an order shall be made directing that such unreasonable waste of gas shall be discontinued or refrained from to the extent stated in said order. The sale or delivery of gas to another by a lessor, lessee or operator shall be no defense, excuse or reason for any lessor, lessee or operator disobeying an order of the state oil and gas supervisor directing the discontinuance or curtailment of the production of the well or wells from which said gas is being produced where such gas is being unreasonably wasted by such buyer or by the person to whom deliveries are being made. A copy of said order must be posted in a conspicuous place upon the property affected thereby, and said order shall become final five (5) days after such posting unless appealed from as provided in section 9 hereof. [Stats. 1929, p. 928.]

Sec. 9. The lessor, lessee, or any operator or any well owner or the owner of any rig, derrick, or other operating structure, or his or its local agent, must within five (5) days from the date of the service of any order

from the supervisor or his chief deputy or field deputy, other than the order contemplated by section 8*d* hereof, file with the supervisor or his deputy in the district where the property is located, a written statement that the order is not acceptable, and that appeal from said order is taken to the board of commissioners of said district under the provisions of this act, or comply with such order. Any lessor, lessee, or operator affected by an order made pursuant to section 8*d* hereof may, within five (5) days from the posting of the copy of such order file with the supervisor written appeal therefrom to the board of commissioners of said district under the provisions of this act. Any such appeal shall operate as a stay of any order issued under or pursuant to the provisions of this act. Immediately upon filing of such notice of appeal, the deputy supervisor of the district, as secretary ex officio of the board of oil and gas commissioners, shall call a meeting of said commissioners to hear and pass upon said appeal. No commissioner shall be disqualified from sitting or acting in any appeal from any order of the state oil and gas supervisor involving the unreasonable waste of gas by reason of the fact that he is an employee of a lessor, lessee or operator who is interested in the oil or gas field affected by such order appealed from. The hearing upon said appeal before said district board of oil and gas commissioners shall be de novo and at such place in the district as the commissioners may designate, and within ten days from the taking of such appeal five days' notice in writing shall be given to the appellant of the time and place of such hearing, and for good cause the commissioners may postpone such hearing on the application of appellant, or the state oil and gas supervisor, or

the field deputy in said district, for not exceeding five days. The board of commissioners after hearing shall affirm, set aside or modify said order as shall be determined by a majority of the whole board. The decision of said board shall forthwith be filed with the oil and gas supervisor and upon such filing shall be final. [Stats. 1929, p. 929.]

Sec. 14*a*. When the decision of the state oil and gas supervisor that there is an unreasonable waste of gas occurring or threatened, shall have become final, a certified copy thereof, or if modified by the order of the board of commissioners, then a certified copy of the order as modified, shall be filed with the director of the department of natural resources. The director, unless said order is complied with voluntarily, shall have proceedings instituted in the name of the people of the State of California to enjoin unreasonable waste of gas. Such proceedings shall be instituted in the superior court for the county in which the property where the wastage is occurring or is threatened or any part thereof may lie. There may be joined in the same proceedings any number of defendants, although their properties and interests may be severally owned and their actual or threatened unreasonable wastage of gas may be separate and distinct; *provided,* the actual or threatened unreasonable waste by all of the defendants are in or with reference to the same producing or prospective oil or gas field. In such suits no restraining order shall be issued ex parte but otherwise the procedure shall be conformable with the provisions of chapter three of title seven of part two of the Code of Civil Procedure of the State of California, and no temporary or

permanent injunction issued in such proceedings shall be refused or dissolved or stayed pending appeal upon the giving of any bond or undertaking or otherwise. In such proceedings the findings of the oil and gas supervisor, unless set aside or modified by the board of commissioners, or if so modified then except to the extent so modified, shall constitute prima facie evidence of the unreasonable wastage of gas therein found to be occurring or threatened. The judgment of the court shall be appealable by any party in the same manner as other judgments rendered under said chapter. [Stats. 1929, p. 930.]

Sec. 14*b*. Whenever it appears to the director of the department of natural resources that the owners, lessors, lessees or operators of any well or wells producing oil and gas or oil or gas are causing or permitting an unreasonable waste of gas, he may institute, or have proceedings instituted, in the name of the people of the State of California, to enjoin such unreasonable waste of gas regardless of whether proceedings have or have not been instituted under section 8 hereof, and regardless of whether an order has or has not been made therein. Such proceedings shall be instituted in the superior court for the county in which the well or wells from which the unreasonable waste of gas is occurring or any thereof are situated. The owners, lessors, lessees or operators causing or permitting an unreasonable waste of gas in the same oil or gas field, although their properties and interests may be separately owned and their unreasonable waste separate and distinct, may be made parties to said action. In such suits no restraining order shall be issued ex parte, but otherwise the procedure shall be governed by the pro-

visions of chapter three, title seven, part two of the Code of Civil Procedure of the State of California and no temporary or permanent injunction issued in such proceedings shall be refused or dissolved or stayed pending appeal upon the giving of any bond or undertaking, or otherwise. [Stats. 1929, p. 930.]

Sec. 17. The owner or operator of any well referred to in this act shall, before commencing the work of drilling an oil or gas well, file with the supervisor, or his local deputy, a written notice of intention to commence drilling. Such notice shall also contain the following information: (1) Statement of location and elevation above sea level of the floor of the proposed derrick and drill rig; (2) the number or other designation by which such well shall be known, which number or designation shall not be changed after filing the notice provided for in this section, without the written consent of the supervisor being obtained therefor; (3) the owner's or operator's estimate of the depth of the point at which water will be shut off, together with the method by which such shut-off is intended to be made and the size and weight of casing to be used; (4) the owner's or operator's estimate of the depth at which oil or gas producing sand or formation will be encountered.

After the completion of any well the provisions of this section shall also apply, as far as may be, to the deepening or redrilling of any well, or any operation involving the plugging of any well or any operations permanently altering in any manner the casing of any well; *and provided, further,* that the number or designation by which any well heretofore drilled has been known, shall

not be changed without first obtaining a written consent of the supervisor. [Stats. 1917, p. 1596.]

Sec. 17*a*. It shall be the duty of the owner or operator of any well referred to in this act to notify the supervisor, or his deputy, in writing, in such form as the supervisor, or his deputy, may direct, of the sale, assignment, transfer, conveyance or exchange, by such owner or operator, of such well, and the land, owned or leased, upon which the well is located, within five days after such sale, assignment, transfer, conveyance or exchange. Said notice shall contain the following: (1) the name and address of the person, firm, association, corporation, trust or syndicate to whom such well was sold, assigned, transferred, conveyed, or exchanged; (2) the name and location of such well; (3) the date of the sale, assignment, transfer, conveyance or exchange; (4) the date when possession was relinquished by the owner or operator; (5) a description of the land upon which such well is situated.

Every person, firm, association, corporation, trust or syndicate acquiring the ownership of any well referred to in this act, whether by purchase, transfer, assignment, conveyance or exchange, or otherwise, shall within five days after acquiring such well, and the land, owned or leased, upon which the well is located, notify the supervisor, or his deputy, in writing, of such ownership. Said notice shall contain the following: (1) the name and address of the person, firm, association, corporation, trust or syndicate from whom said well was acquired; (2) the name and location of said well; (3) the date of acquisition; (4) the date when possession was acquired; (5) a description of the land upon which such well is situated. [Stats. 1929, p. 932.]

Sec. 18. It shall be the duty of the owner and operator of any well referred to in this act to keep a careful and accurate log, core record and history, of the drilling of such well, such log to show the character and depth of the formation passed through or encountered in the drilling of such well, and particularly to show the location and depth of the water-bearing strata, together with the character of the water encountered from time to time (so far as ascertained) and to show at what point such water was shut off, if at all, and if not, to so state in such log, and show completely, the amounts, kinds and size of casing used, and show the depth at which oil-bearing strata are encountered, the depth and character of same and whether all water, overlying and underlying such oil-bearing strata was successfully and permanently shut off so as to prevent the percolation or penetration into such oil-bearing strata; such core record to show depth, character, and fluid content of cores obtained, so far as determined; such history to show location and amount of side-track casings, tools or other material, depth and quantity of cement in cement plugs, shots of dynamite or other explosives, results of production, and other tests during drilling operations; such logs shall be kept in the local office of the owner or operator, and, together with the tour reports of said owner or operator, shall be subject, during business hours, to the inspection of the supervisor, or any of his deputies, or any of the commissioners of the district, except in the case of a prospect well as hereafter defined. Upon the completion of any well, or upon the suspension of operations upon any well, for a period of six months, if it be a prospect well, or for thirty days, if it be in proven territory, a copy of said log, core

record and history, in duplicate, and in such form as the supervisor may direct, shall be filed within ten days after such completion, or after the expiration of said thirty day period, with the field supervisor, and a like copy shall be filed upon the completion of any additional work in the deepening of any such well. The owner or operator of any well referred to in this act, or his local agent, shall file with the supervisor a copy of such log, history, and core record, or any portion thereof, at any time after the commencement of the work of drilling any such well, except a prospect well, upon written request of the supervisor, or his deputy. Such request shall be signed by the supervisor, or his deputy, and served either personally upon, or by mailing a copy of said request, by registered mail, to the last known post-office address of such owner or operator or agent.

A well shall be deemed completed, for the purposes of this act, thirty days after the well has commenced to produce oil, water, or gas, unless drilling operations are resumed before the end of the thirty-day period.

The state oil and gas supervisor shall determine and designate what wells are prospect wells within the meaning of this act, and no reports shall be required from such prospect wells until six months after the completion thereof.

The owner or operator of any well drilled previous to the enactment of this act shall furnish to the supervisor or his deputy, a complete and correct log, in duplicate, and in such form as the supervisor may direct, or his deputy, of such well, so far as may be possible, together

with a statement of the present condition of said well. [Stats. 1929, p. 933.]

Sec. 20. It shall be the duty of every person, association or corporation producing oil in the State of California, to file with the supervisor, on or before the tenth day of each month, for the last preceding calendar month, a statement showing amount of oil and gas produced during the period indicated from each well, together with its gravity and the amount of water produced from each well, estimated in accordance with methods approved by the supervisor, and the number of days during which fluid was produced from each well, the number of wells drilling, producing or idle, owned or operated by said person, association or corporation; also what disposition was made of the gas produced from each well, including the names of persons, if any, to whom said gas was delivered, and such other information regarding gas and the disposition thereof as the state oil and gas supervisor may require; *provided,* that, upon request and satisfactory showing a longer interval may be fixed by the state oil and gas supervisor as to such reports in the case of any specific owner or operator.

This information shall be in such form as the supervisor may designate. [Stats. 1929, p. 935.]

Sec. 21. Any owner or operator of any well referred to in this act, or employee thereof, who refuses to permit the supervisor, or his deputy, or his inspector, to inspect the same, or who wilfully hinders or delays the enforcement of this act, and every person, firm, association, corporation, trust or syndicate, whether as principal, agent,

servant, employee or otherwise, violating or failing, neglecting or refusing to comply with any of the provisions of this act, or failing or neglecting or refusing to furnish any report or record which may be required pursuant to the provisions of this act, or who wilfully renders a false or fraudulent report, is guilty of a misdemeanor, and shall be punishable by a fine of not less than one hundred dollars, nor more than five hundred dollars, or by imprisonment in the county jail for not exceeding six months, or by both such fine and imprisonment, for each such offense. [Stats. 1929, p. 935.]

Sec. 21*a*. The charges hereinafter provided for are directed to be levied by the State of California as necessary in the exercise of its police power and to provide a means by which to supervise and protect deposits of petroleum and gas within the State of California, in which deposits the people of the State of California are hereby declared to have a primary and supreme interest. [Stats. 1917, p. 1598.]

Sec. 22. Charges levied, assessed and collected as hereinafter provided upon the properties of every person, firm, corporation or association operating any well or wells for the production of petroleum in this state, or operating any well or wells for the production of natural gas in this state which gas wells are situate on lands situate within two miles, as near as may be, of any petroleum or gas well the production of which is chargeable under this act, shall be used exclusively for the support and maintenance of the division of the department of natural resources charged with the supervision of petroleum and gas, and shall be assessed and levied by the department

of natural resources and collected in the manner hereinafter provided. [Stats. 1929, p. 935.]

Sec. 23. Every person, firm, corporation or association operating any petroleum well or wells in this state shall annually pay a charge to the state treasurer at a uniform rate per barrel of petroleum produced for the preceding calendar year at the time and in the manner hereinafter provided, based upon a verified report as herein provided. [Stats. 1915, p. 1410.]

Sec. 24. Every person, firm, corporation or association operating any gas well or wells in this state shall annually pay a charge to the state treasurer based upon the amount of gas sold in the preceding calendar year, at a fixed rate per thousand cubic feet, at the times and in the manner hereinafter provided, based upon a verified report as herein provided. [Stats. 1917, p. 1599.]

Sec. 50. Whenever the term "supervisor" is used in this act it shall be taken to mean the "state oil and gas supervisor," the term "oil" shall include "petroleum," the term "petroleum" shall include "oil," the term "gas" shall mean natural gas coming from the earth, the term "operator" shall mean any person, firm or corporation drilling, maintaining, operating, pumping, or in control of a well in any territory which the supervisor determines to be oil or gas producing territory, the term "owner" shall include "operator" when any oil or gas well is operated or has been operated or is about to be operated by any person, firm or corporation other than the owner thereof, and the term "operator" shall include "owner" when any such well is or has been or is about to be operated by or under the direction of the owner, except that all the pro-

visions of this act relating to assessments for the purposes of this act based upon the annual production of oil or petroleum or sale of gas, as set forth in sections 22 to 45 inclusive of this act, shall apply only to a person, firm or corporation operating an oil or petroleum or gas well, and shall not apply to the owner of such well if some person, firm or corporation, other than such owner, has been actually operating the well during the whole period for which such annual charge is made, but in the event that the actual operation of any such well changes hands during such period, the charge shall be apportioned upon the basis of the oil or petroleum or gas produced, and the lien provided for in section 41 of this act shall be a lien against the property of each and all such operators. Words used in this act in the present tense include the future as well as the present; words used in the masculine gender include the feminine and neuter; and the neuter, the masculine and feminine; the singular number includes the plural, and the plural, the singular; "writing" includes "printing" and "typewriting." [Stats. 1929, p. 942.]

Sec. 52. If any section, subsection, sentence, clause or phrase of this act is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this act. The legislature hereby declares that it would have passed this act, and each section, subsection, sentence, clause, and phrase thereof, irrespective of the fact that any one or more other sections, subsections, sentences, clauses, or phrases be declared unconstitutional. [Stats. 1915, p. 1419.]

Sec. 53. This act shall be liberally construed to meet its purposes and the director of the department of natural resources and the supervisor shall have all powers which may be necessary to carry out the purposes of this act, and the provisions of this act shall apply to any land or wells situated within the boundaries of an incorporated city where the drilling of oil wells is now or may hereafter be prohibited until all wells thereon have been abandoned as provided in this act. [Stats. 1929, p. 943.]

This act is hereby declared to be an urgency measure necessary for the immediate preservation of the public peace and safety within the meaning of section 1 of article four of the constitution, and as such shall take effect immediately. The facts constituting such necessity are as follows:

At the present time in the oil and gas producing fields within the state there is now being blown into the air and wasted daily on the average approximately five hundred million cubic feet of gas. New fields producing heavily of natural gas are being opened up which will tend to add to the amount of natural gas being blown into the air and wasted and lost. [Stats. 1929, p. 943.]

Due service of the within Statement is hereby acknowledged this .....day of April, A. D. 1931.

_____

_____

Attorneys for Appellees.

FILE COPY

APR 30

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1930.

No. [redacted] 43

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation; and Ambassador Petroleum Company, a corporation,

Petitioners and Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the judges thereof,

Respondents and Appellees.

SUPPLEMENT TO APPELLANTS' BRIEF IN OPPOSITION TO MOTION TO DISMISS OR AFFIRM, INCLUDING APPENDICES A AND B, AND PETITION FOR CERTIORARI.

ROBERT V. MURPHEY,
ASA V. CALL
Counsel for Appellants.

Parker, Stone & Baird Co., Law Printers, Los Angeles.

TOPICAL INDEX.

PAGE

Appendix "A." Pertinent Sections Quoted From Gas Conservation Statutes of California, Being Chapter 718, Statutes of 1915, p. 1419, as Amended by Chapter 536, Statutes of 1919, as Amended by Chapter 535, Statutes of 1929, p. 925..... 3

Appendix "B." Some Notes on the Situation at Santa Fe Springs With Respect to Gas-Oil Ratios, by Dr. Stanley C. Herold of Stanford University, Petroleum Geologist..... 13

Petition 17

A. Summary Statement of the Matters Involved..... 18

Grounds of Jurisdiction, and Federal Questions and Federal Rights Specially Set Up and Claimed..... 20

The Particulars in Which the California Statute, as Construed and Applied Against Appellants, Is Claimed in the Petition for Writ of Prohibition to Be Repugnant to the Constitution of the United States, and in Which the Statute, as Construed and Applied Against Appellants, Deprives Appellants of Rights, Privileges and Immunities Under the Constitution of the United States, and the References to the Record Showing They Were Specially Set Up and Claimed by Appellants.. 21

Assignment of Errors..... 26

B. Reasons Relied Upon for the Allowance of the Writ..... 26

TABLE OF CASES AND AUTHORITIES CITED.

PAGE

Act of Feb. 13, 1925, Ch. 229, Sec. 1, 43 Stat. 937, U. S. Code, Title 28, Sec. 344..... 18

Consolidated Turnpike Co. v. Norfolk etc. Ry. Co., 228 U. S. 596, 57 L. Ed. 982..... 25

Marvin v. Trout, 199 U. S. 212, 50 L. Ed. 157..... 25

New York *ex rel.* Bryant, 278 U. S. 63, 68, 73 L. Ed. 184, 187..... 25

United States Constitution, Sec. 10 of Art. I..... 21

United States Judicial Code, Secs. 237 (b) and (c)..... 18

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1930.

No. 852.

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation; and Ambassador Petroleum Company, a corporation,

Petitioners and Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the judges thereof,

Respondents and Appellees.

SUPPLEMENT TO APPELLANTS' BRIEF IN OPPOSITION TO MOTION TO DISMISS OR AFFIRM, PETITION FOR WRIT OF CERTIORARI.

Two appendices and a formal petition for writ of certiorari to the District Court of Appeal of the state of California, Second Appellate District, Second Division, are

submitted herewith as an integral part of, and a supplement to, the brief of appellants in opposition to the motion of appellees to dismiss the appeal or affirm the judgment appealed from.

ROBERT V. MURPHEY,
ASA V. CALL
Counsel for Appellants.

APPENDIX "A."

Pertinent Sections Quoted From Gas Conservation Statutes of California, Being Chapter 718, Statutes of 1915, p. 1419, as Amended by Chapter 536, Statutes of 1919, as Amended by Chapter 535, Statutes of 1929, p. 925.

An act to protect the natural resources of petroleum and gas from waste and destruction; relating to the creation of a division in the department of natural resources for the prevention of such waste and destruction; providing for the appointment of a state oil and gas supervisor; prescribing his duties and powers; fixing his compensation; providing for the appointment of deputies and employees; providing for their duties and compensation; providing for the inspection of petroleum and gas wells; requiring all persons operating petroleum and gas wells to make certain reports; permitting and authorizing agreements in the interests of conservation; providing for suits by the director of the department of natural resources in the name of the people of the State of California; providing procedure for arbitration of departmental rulings; creating a fund for the purposes of the act; providing for assessment of charges to be paid by operators and providing for the collection thereof; and making an appropriation for the purposes of this act.

Approved June 10, 1915, Ch. 718; amended 1917, Ch. 759; amended 1919, Ch. 536; amended 1921, Ch. 912; amended 1929, Ch. 535.

The people of the State of California do enact as follows:

SEC. 8b. The unreasonable waste of natural gas by the act, omission, sufferance or insistence of the lessor, lessee or operator of any land containing oil or gas, or both,

whether before or after the removal of gasoline from such natural gas, is hereby declared to be opposed to the public interest and is hereby prohibited and declared to be unlawful. The blowing, release or escape of natural gas into the air shall be *prima facie* evidence of unreasonable waste. (Stats. 1929, p. 927.)

SEC. 8d. Upon complaint being made to the director of natural resources by any person operating in any oil field that there is occurring or threatened an unreasonable waste of gas in any field or fields and a petition is filed with said director requesting that a hearing be held to consider whether such waste is occurring or threatened, and it appearing to the director of natural resources that there is probable cause for such complaint, he shall order the state oil and gas supervisor to hold such a hearing and to fix a time and place therefor; such a hearing may also be ordered by the said director on the application of the state oil and gas supervisor. Notice of the time and place of said hearing shall be given by publication in a newspaper printed and published in the county in which the unreasonable waste of gas is alleged to be taking place or to be threatened. Said notice shall also specify the commonly accepted name or a general description of the field or locality in which the unreasonable waste of gas is alleged to be taking place or to be threatened. The place of hearing shall be in the county or in any of the counties in which the unreasonable waste of gas is alleged to be taking place or to be threatened. Such publication shall be daily for five (5) days prior to the time of the hearing. The state oil and gas supervisor shall also send notice by mail to each lessor, lessee or operator of any oil and gas

well in said field so far as the same may be known to him. No failure to send such written notice shall affect the validity of the proceeding. At such hearing all persons interested shall be entitled to be heard and may present testimony either oral or written. All witnesses shall be sworn and a transcript of the proceedings shall be kept by a stenographic reporter. All the provisions of this act in reference to the subpoenaing of witnesses and the taking of depositions shall be applicable to the hearing before the state oil and gas supervisor. Upon the conclusion of said hearing the state oil and gas supervisor shall determine whether or not there is an unreasonable waste of gas in said field, in existence or threatened, and shall also determine the extent to which the waste of gas therein occurring or threatened is unreasonable. If it shall appear that gas is being produced from any oil well or wells in quantities exceeding a reasonable proportion to the amount of oil produced from the same well or wells, even though it is shown that such excess gas is being used in the generation of light, heat, power or other industrial purpose and that there is sufficient other gas available for such uses from other wells in the same or other fields in which the gas produced is not in excess of the amount which bears a reasonable proportion to the amount of oil produced from such other wells and that there are adequate gas-pipe-line connections between such other wells and the place of utilization of such gas the state oil and gas supervisor shall hold that such excess production of gas is unreasonable waste thereof if such holding will not cause an unreasonable waste of gas in any other field. If the waste of gas be found unreasonable an order shall be made

directing that such unreasonable waste of gas shall be discontinued or refrained from to the extent stated in said order. The sale or delivery of gas to another by a lessor, lessee or operator shall be no defense, excuse or reason for any lessor, lessee or operator disobeying an order of the state oil and gas supervisor directing the discontinuance or curtailment of the production of the well or wells from which said gas is being produced where such gas is being unreasonably wasted by such buyer or by the person to whom deliveries are being made. A copy of said order must be posted in a conspicuous place upon the property affected thereby, and said order shall become final five (5) days after such posting unless appealed from as provided in section 9 hereof. (Stats. 1929, p. 928.)

SEC. 9. The lessor, lessee, or any operator or any well owner or the owner of any rig, derrick, or other operating structure, or his or its local agent, must within five (5) days from the date of the service of any order from the supervisor or his chief deputy or field deputy, other than the order contemplated by section 8d hereof, file with the supervisor or his deputy in the district where the property is located, a written statement that the order is not acceptable, and that appeal from said order is taken to the board of commissioners of said district under the provisions of this act, or comply with such order. Any lessor, lessee, or operator affected by an order made pursuant to section 8d hereof may, within five (5) days from the posting of the copy of such order file with the supervisor written appeal therefrom to the board of commissioners of said district under the provisions of this act. Any such appeal shall operate as a stay of any order issued under or pur-

suant to the provisions of this act. Immediately upon filing of such notice of appeal, the deputy supervisor of the district, as secretary *ex officio* of the board of oil and gas commissioners, shall call a meeting of said commissioners to hear and pass upon said appeal. No commissioner shall be disqualified from sitting or acting in any appeal from any order of the state oil and gas supervisor involving the unreasonable waste of gas by reason of the fact that he is an employee of a lessor, lessee or operator who is interested in the oil or gas field affected by such order appealed from. The hearing upon said appeal before said district board of oil and gas commissioners shall be *de novo* and at such place in the district as the commissioners may designate, and within ten days from the taking of such appeal five days' notice in writing shall be given to the appellant of the time and place of such hearing, and for good cause the commissioners may postpone such hearing on the application of appellant, or the state oil and gas supervisor, or the field deputy in said district, for not exceeding five days. The board of commissioners after hearing shall affirm, set aside or modify said order as shall be determined by a majority of the whole board. The decision of said board shall forthwith be filed with the oil and gas supervisor and upon filing shall be final. (Stats. 1929, p. 929.)

SEC. 10. For the purposes of this act, the state shall be divided into five districts, as follows:

District No. 1, including the counties of Los Angeles, Riverside, Orange, San Diego, Imperial, and San Bernardino.

District No. 2, the county of Ventura.

District No. 3, including the counties of Santa Barbara, San Luis Obispo, Monterey, Santa Cruz, San Benito, Santa Clara, Contra Costa, San Mateo, Alameda, and San Francisco.

District No. 4, including the counties of Tulare, Inyo, and Kern.

District No. 5, including the counties of Fresno, Madera, Kings, Mono, Mariposa, Merced and all other counties in California not included in any of said other districts.

There shall be elected, at the times and in the manner hereinafter provided, district oil and gas commissioners for each such districts, as follows: For district number one, five; for district number two, five; for district number three, five; for district number four, seven; for district number five, five.

Said district oil and gas commissioners shall be elected by vote of the companies, individuals, copartnerships or associations, who shall have been assessed, and whose names shall appear on the last record of assessments (next preceding such election) for and on account of the fund in this act provided to be raised, within said districts respectively, said vote to be taken at a meeting to be held in each of said districts, respectively, and on the third Monday in September of each year, such place and the time and details of such meeting to be fixed by the state oil and gas supervisor, and of which meeting at least two weeks previous notice shall have been given by letter addressed to each of said persons, corporations, copartnerships and associations, entitled to vote as aforesaid, at his or its post-office address or principal place of business.

At said meeting each of those entitled to vote as herein provided may be represented by one person holding the written authority of such voter to act for him at such meeting. At said meeting each voter shall be entitled to one vote for each member of the board of district oil and gas commissioners who are required to be selected for such district. In addition thereto, in each district in which five commissioners are to be elected, each voter shall be entitled for each one hundred dollars, or fraction thereof, which said voter shall have paid in accordance with his last assessment hereunder, to cast one vote for the two commissioners who are elected for three years; and in each district in which seven commissioners are to be elected, each voter shall be entitled, for each one hundred dollars, or fraction thereof, which such voter shall have paid in accordance with his last assessment hereunder, to cast one vote for the three commissioners who are elected for three years. In all subsequent elections the qualification of voters in the election of a commissioner shall be the same as in the election of the commissioner whose successor in office is being elected. Said meeting shall select by ballot, by a majority vote of the votes represented, the number of persons as hereinbefore specified to act as district oil and gas commissioners for such district. In any district entitled to seven commissioners, two shall be chosen for a term of one year, two for two years and three for three years. In any district entitled to five commissioners one shall be chosen for a term of one year, two for two years and two for three years. * * * (Stats. 1919, Ch. 536.)

SEC. 14a. When the decision of the state oil and gas supervisor that there is an unreasonable waste of gas

occurring or threatened, shall have become final, a certified copy thereof, or, if modified by the order of the board of commissioners, then a certified copy of the order as modified, shall be filed with the director of the department of natural resources. The director, unless said order is complied with voluntarily, shall have proceedings instituted in the name of the people of the State of California to enjoin unreasonable waste of gas. Such proceeding shall be instituted in the superior court for the county in which the property where the wastage is occurring or is threatened or any part thereof may lie. There may be joined in the same proceedings any number of defendants, although their properties and interests may be severally owned and their actual or threatened unreasonable wastage of gas may be separate and distinct; *provided*, the actual or threatened unreasonable waste by all of the defendants are in or with reference to the same producing or prospective oil or gas field. In such suits no restraining order shall be issued *ex parte* but otherwise the procedure shall be conformable with the provisions of chapter three of title seven of part two of the Code of Civil Procedure of the State of California, and no temporary or permanent injunction issued in such proceedings shall be refused or dissolved or stayed pending appeal upon the giving of any bond or undertaking or otherwise. In such proceedings the findings of the oil and gas supervisor, unless set aside or modified by the board of commissioners, or if so modified then except to the extent so modified, shall constitute *prima facie* evidence of the unreasonable wastage of gas therein found to be occurring or threatened. The judgment of the court shall be appealable by any party in the same manner

as other judgments rendered under said chapter. (Stats. 1929, p. 930.)

SEC. 14b. Whenever it appears to the director of the department of natural resources that the owners, lessors, lessees or operators of any well or wells producing oil and gas or oil or gas are causing or permitting an unreasonable waste of gas, he may institute, or have proceedings instituted, in the name of the people of the State of California, to enjoin such unreasonable waste of gas regardless of whether proceedings have or have not been instituted under section 8 hereof, and regardless of whether an order has or has not been made therein. Such proceedings shall be instituted in the superior court for the county in which the well or wells from which the unreasonable waste of gas is occurring or any thereof are situated. The owners, lessors, lessees, or operators causing or permitting an unreasonable waste of gas in the same oil or gas field, although their properties and interests may be separately owned and their unreasonable waste separate and distinct, may be made parties to said action. In such suits no restraining order shall be issued *ex parte*, but otherwise the procedure shall be governed by the provisions of chapter three, title seven, part two of the Code of Civil Procedure of the State of California and no temporary or permanent injunction issued in such proceedings shall be refused or dissolved or stayed pending appeal upon the giving of any bond or undertaking, or otherwise. (Stats. 1929, p. 930.)

SEC. 21. Any owner or operator of any well referred to in this act, or employee thereof, who refuses to permit the supervisor, or his deputy, or his inspector, to inspect the same, or who wilfully hinders or delays the enforce-

ment of this act, and every person, firm, association, corporation, trust or syndicate, whether as principal, agent, servant, employee or otherwise, violating or failing, neglecting or refusing to comply with any of the provisions of this act, or failing or neglecting or refusing to furnish any report or record which may be required pursuant to the provisions of this act, or who wilfully renders a false or fraudulent report, is guilty of a misdemeanor, and shall be punishable by a fine of not less than one hundred dollars, nor more than five hundred dollars, or by imprisonment in the county jail for not exceeding six months, or by both such fine and imprisonment, for each such offense.

SEC. 21a. The charges hereinafter provided for are directed to be levied by the State of California as necessary in the exercise of its police power and to provide a means by which to supervise and protect deposits of petroleum and gas within the State of California, in which deposits the people of the State of California are hereby declared to have a primary and supreme interest.

APPENDIX "B."

Some Notes on the Situation at Santa Fe Springs With Respect to Gas-Oil Ratios, by Dr. Stanley C. Herold of Stanford University, Petroleum Geologist.

Los Angeles, California. March 27, 1930.

In the injunction proceedings against operators of oil and gas wells it is admitted by the state, through its representatives as attorneys and others, that the purpose behind any and all action shall be one of justice equally distributed to all such operators without regard to size of property holdings and amount of capital invested in this field and elsewhere. Such justice is, of course, impossible unless the demands of the injunction are in full accord with the laws of nature. She controls the situation within the productive zones at Santa Fe Springs as well as everywhere else. In the words of Horace, "Drive out Nature with a pitchfork; she will come back every time." As to these laws of nature, many of us hold diverse opinions. I can do no more than to offer my ideas for your consideration along with those of others. Let me state them as concisely as possible:

(1) Each productive zone in the Santa Fe Springs is a reservoir in itself; that is to say, each has its own identity apart from every other zone, regardless of the fact that any well, provided it is properly located, may be caused to produce from any one of them in succession on deepening.

(2) Nature has already established for us the gas-oil ratio in each zone separately.

(3) We may exercise a temporary control over such gas-oil ratios, but we cannot alter the total ultimate yield of gas with respect to the total ultimate yield of oil. The fluids within the pools initially are exactly the fluids to be produced entirely by the time of depletion.

(4) If the gas-oil ratio is lowered at one well or group of wells, either the detained gas will be produced later by the same well or wells, or by another well or group of wells.

(5) Gas detained at wells on the flank of the structure will slip up the dip toward the crest of the structure.

(6) Wells at the crest of the structure must produce with a greater gas-oil ratio than those down the flank.

(7) *In the absence of wells on the crest of the* structure, a large bubble of gas accumulates at such crest. This bubble is one which occupies at most 80 per cent of the pore space in the productive formation; oil occupies the remaining 20 per cent.

(8) Final depletion of the pools means the entire replacement of oil and gas by encroached edgewater.

(9) The compressed gas within each pool is the source of energy which delivers the oil to the bottom of the well, from all directions radially outward, for a short period of time known as the period of flush production.

(10) Water under hydrostatic head, transmitting its pressure through edgewater surrounding the pools, is the source of energy throughout the remaining life of the wells on settled production.

(11) The amount of gas in each pool determines the rate and the amount of flush oil production.

(12) The amount of gas in each pool in no way determines the amount of settled oil production.

(13) The amount of gas in each pool in no way determines the amount of total ultimate oil production from the pool.

(14) The gas lift is a machine apart from the productive zone which is in itself a huge machine. The energy of compressed gas is essential in the successful operation of the lift. Any gas not furnished by the zone can be furnished by an operator's pump to the same effect.

(15) Gas injection increases the rate of oil production at wells in the vicinity of injection. It holds the wells on "flush production." It in no way increases the total ultimate oil production from the pool.

(16) Gas cannot be stored in a producing zone by means of injection so long as wells at the crest of the structure are producing.

(17) Gas can be effectively stored in water-sands which overlie the productive zones.

These are the facts as I see them at Santa Fe Springs. I believe they hold for all productive zones post-Cretaceous in age.

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1930.

No. 852.

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation; and Ambassador Petroleum Company, a corporation,

Petitioners and Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the judges thereof,

Respondents and Appellees.

PETITION FOR WRIT OF CERTIORARI TO THE DISTRICT COURT OF APPEAL OF THE STATE OF CALIFORNIA, SECOND APPELLATE DISTRICT, SECOND DIVISION.

(NOTE: All references to the record are to the typewritten record filed with the Clerk on the appeal proceedings, Case No. 852, Oct. Term, 1930,—the printing of same not yet having been completed.)

May it Please the Court:

The petition of Bandini Petroleum Company, a corporation, Commodore Petroleum Company, a corporation, Wilshire Oil Company, Inc., a corporation, Wilshire Annex Oil Company, a corporation, and Ambassador Petroleum Company, a corporation, respectfully shows:

A. Summary Statement of the Matters Involved.

Petitioners above named hereby apply for a writ of certiorari to review the decision of the District Court of Appeal of the State of California, Second Appellate District, Second Division, in the cause entitled as above [R. 333, 363½] denying the application of petitioners duly presented to that court for a peremptory writ of prohibition [R. 1-327] to prevent the Superior Court of Los Angeles county from enforcing a preliminary injunction against appellants [R. 288], or taking further proceedings against appellants, in an action brought by the State of California. Said action was brought under a statute of that state [see material portions of statute printed herewith as Appendix A], to enjoin the alleged unreasonable waste of natural gas by appellants and others in Santa Fe Springs oil field. This application is made as a motion in the appeal proceedings taken by appellants to this court to review the said decision, Case No. 852, October Term, 1930, and is made upon the record in said case, and upon said appeal proceedings, under sections 237 (b) and (c), United States Judicial Code. (Act of Feb. 13, 1925, ch. 229, sec. 1, 43 Stat. 937; U. S. Code, title 28, sec. 344.) If this court should hold that appeal was improvidently sought and allowed, then petitioners move and pray that the papers whereon the appeal was

allowed be regarded and acted upon as a petition for certiorari and as if duly presented to this court at the time they were presented to the presiding justice of said District Court of Appeal, by whom the appeal was allowed.

An alternative writ of prohibition [R. 328] was issued on April 9, 1930 [R. 327½]. The only return thereto was a demurrer [R. 331]. The opinion of the said District Court of Appeal [R. 333] is not yet officially reported, but is found in the Advance Sheets of said court at 63 Cal. App. Dec. 1175. On December 19, 1930, appellants petitioned said court for a rehearing, which petition was timely filed [R. 364] and was denied by said court on December 27, 1930 [R. 486]. On January 8, 1931, appellants petitioned the Supreme Court of California for an order for a transfer of said cause to, and a hearing by, said court, which petition was timely filed [R. 487], and which was denied by said court on January 26, 1931 [R. 671½], on which date said judgment became final. The appeal to this court was presented to and allowed on January 29, 1931, by the Hon. Lewis R. Works, the presiding justice of said District Court of Appeal [R. 692], which was the highest court in the state in which a decision in the cause could be had.

The suit in which the preliminary injunction above mentioned was issued was commenced in the Superior Court of Los Angeles county, California, on September 11, 1929, by the People of the State of California on relation of Fred G. Stevenot, Director of Natural Resources of said state, as plaintiffs, and against appellants and petitioners herein and the other owners and/or operators of

oil wells in Santa Fe Springs oil field as defendants. The suit was instituted and maintained solely under the supposed authority of sections 8b and 14b of the statute above referred to, which sections were adopted in 1929 [see Appendix A]. A statement of the proceedings in the Superior Court and of the uncontradicted and admitted facts established by the evidence in the Superior Court of the preliminary injunction and of the other facts, are alleged in the petition for writ of prohibition [R. 3-28] a summary of which is set forth in appellants' Statement as to Jurisdiction on Appeal and also in the brief, in the supplement to which this petition is printed, which are hereby referred to and made a part hereof, in the interest of brevity.

Grounds of Jurisdiction, and Federal Questions and Federal Rights Specially Set Up and Claimed.

Your petitioners invoke the jurisdiction of this court to review the said judgment of said District Court of Appeal of the state of California upon writ of certiorari, on the ground that in the said petition for writ of prohibition presented by petitioners to the said state court there was drawn in question not only (1) the validity of the California statute above referred to on the ground of its being repugnant to the Constitution of the United States, but also (2) certain rights of your petitioners specially set up and claimed by them in said petition presented to said District Court of Appeal of the state of California under the "equal protection" and "due process" clauses of the Fourteenth Amendment of the Constitution of the United States, and the impairment of contracts clause in section 10 of Article I of said Constitution.

The federal rights so specially set up and claimed by petitioners are as follows: (a) The right not to have enforced against petitioners a statute which is void for uncertainty and lack of an ascertainable or sufficiently definite standard of conduct to satisfy the requirements of the "due process" and "equal protection" clauses of the Fourteenth Amendment; (b) The right not to be deprived of their property by the state without due process of law; (c) The right to the equal protection of the laws; (d) The right that petitioners' oil and gas lease contracts be not impaired by subsequent state legislation; (e) The right not to have enforced against petitioners a statute creating an arbitrary or unreasonable presumption of petitioners' guilt or violation of the statute; (f) The right not to have a judgment rendered or enforced against petitioners, the necessary effect of which violates the "equal protection" and "due process" clauses of the Fourteenth Amendment and the impairment of contract clauses of section 10 of Article I of the United States Constitution.

The Particulars in Which the California Statute, as Construed and Applied Against Appellants, Is Claimed in the Petition for Writ of Prohibition to Be Repugnant to the Constitution of the United States, and in Which the Statute, as Construed and Applied Against Appellants, Deprives Appellants of Rights, Privileges and Immunities Under the Constitution of the United States, and the References to the Record Showing They Were Specially Set Up and Claimed by Appellants.

At pages 20-25 of the petition for writ of prohibition filed in the lower court [R. 20-25] are set forth the particulars in which the state statute involved violates the Federal Constitution and in which the Superior Court ex-

ceeded, and threatens to exceed, its jurisdiction in enforcing said statute, or proceeding further thereunder against petitioners. Said petition includes, by reference [R. 24, clause *e*], the grounds of unconstitutionality of the statute under the Federal Constitution, as well as the rights asserted under the Federal Constitution, as they are set forth in the answer filed by petitioners in the Superior Court (the allegations and denials of which are incorporated and realleged in the petition for writ of prohibition, R. 6), and also in the demurrer to the complaint [R. 98] and in the points and authorities annexed thereto [R. 114].

These federal questions, and the particular references to the record showing that they were raised, specially set up and claimed, and called to the attention of the lower courts, may be summarized as follows:

1. The California statute, under the supposed authority of which the action in the Superior Court was instituted and the orders of that court were made, is so vague, uncertain and indefinite, as to the definition, guide or standard of what constitutes "unreasonable waste of natural gas," that it violates the "due process" clause of the Fourteenth Amendment of the United States Constitution [R. 21, 99, 115-116, 118, 121, 336, 357], and therefore the orders of the Superior Court complained of, construing and applying the statute to petitioners, and the enforcement thereof, are in excess of the jurisdiction of said Superior Court [R. 20-25, 123].

2. The California statute as construed and applied to and sought to be enforced against petitioners, and also the rendition and enforcement of the preliminary injunc-

tion of the Superior Court, deprives petitioners of their property without "due process" of law, in violation of the Fourteenth Amendment of the United States Constitution, and is in excess of the jurisdiction of said court:

(a) In that, under the uncontradicted and admitted facts, each of petitioners' oil wells is being efficiently operated at a proper and reasonable gas-oil ratio for each well and for the field, and so as not to injuriously affect the rights or operations of other operators or owners in the same field, and the admitted sole purpose of the decrease in the allowed gas production to petitioners required by them in the efficient production of oil as aforesaid, is to reserve such natural gas in the ground for light, heat and power for the benefit of the general consuming public, and that this cannot be accomplished without compensation, nor without a condemnation suit in the exercise of the power of eminent domain. [R. 23, 99, 119-121, 157-159, 164, 178-183, 6-par. 4, 336-357.]

(b) In that, under the admitted facts, the extent of the invasion of petitioners' property rights is so great, so arbitrary, so unreasonable, so oppressive, and so unrelated to and in excess of the power of the state, that it cannot be sustained under the police power of the state, but the due process clause of the Federal Constitution requires the exercise of the power of eminent domain. [R. 6, 23-24, 100, 159-164, 166, 180, 183, 336-357.]

(c) In that the *"prima facie"* evidence clause of the statute violates the due process clause of the Fourteenth Amendment. [R. 24, 115, 124, 125.]

3. The California statute as construed and applied to and sought to be enforced against appellants, impairs

the obligations of the oil and gas lease contracts of appellants requiring diligent drilling and operation, and in two instances to "maximum capacity," under penalty of forfeiture, all in violation of section 10 of article I of the United States Constitution. [R. 24, 6, 100, 120, 178, 182.]

4. The statute of California as construed and applied to and sought to be enforced against appellants, denies to appellants the "equal protection of the laws" guaranteed to appellants by the Fourteenth Amendment of the United States Constitution. [R. 24, 6, 121-2, 160-166.]

5. The necessary effect of the preliminary injunction against petitioners is to deprive petitioners of their property without due process of law, and to deny them the equal protection of the laws, all in violation of the Fourteenth Amendment. [R. 23-24, pages cited under items 1 to 4, *supra.*]

Not only do the foregoing references to the *record itself* show that these federal questions were presented to the lower court in the petition for writ of prohibition, as well as in the proceedings in the Superior Court forming the basis for the writ of prohibition, but the record also includes a certificate of the lower court [R. 714], and also a stipulation of counsel [R. 718], to the effect that each of the federal questions set forth in the assignment of errors in this court [R. 676] were duly, regularly, properly and timely raised and specifically set up and claimed by appellants in the lower court, all in accordance with the laws, rules of court and the practice prevailing in California, and the validity of the statute was sustained as against each and all of the various

claims of appellants of its being repugnant to the Constitution of the United States. [R. 714-717.] This certificate of the court recites:

> "That each of said questions was duly considered by this court on its merits, and the contentions of appellants respecting each of said questions were each and all denied; that a decision upon each of said questions and claims of the appellants was necessary to the decision and judgment of this court filed November 29, 1930." [R. 716.]

Although appellants are not dependent on such certificate, it may be considered and should remove all doubt. (*Consolidated Turnpike Co. v. Norfolk etc. Ry. Co.*, 228 U. S. 596, 57 L. Ed. 982; Marvin v. Trout, 199 U. S. 212, 50 L. Ed. 157.) The record also contains a topical index of appellants' brief in the lower court [R. 724], the petition for rehearing [R. 364] and the petition for hearing by the Supreme Court of California [R. 487], all showing these federal questions again raised. The California practice does not recognize an assignment of errors; it merely requires a "printed" brief containing the points and authorities, "relied on," with a "topical index" if same is more than 30 pages long. (See *New York ex rel. Bryant*, 278 U. S. 63, 68, 73 L. Ed. 184, 187.)

The opinion of the lower court itself, which for present purposes is deemed part of the record (*N. Y. ex rel. Bryant, supra*) shows that that court considered these federal questions as properly raised [R. 333-6], and expressly passed on all of them adversely to appellants' claims, [R. 336], except as to one or two, where such was the necessary effect of the judgment. See Point C of Appellants' Brief in Opposition to Motions to Dismiss or Affirm.

ASSIGNMENT OF ERRORS.

Petitioners adopt the Assignment of Errors, filed on the appeal proceedings [R. 676-685].

B. Reasons Relied Upon for the Allowance of the Writ.

The reasons upon which your petitioners rely for the allowance of the writ sought herein are:

1. Substantial federal questions are presented relating to the exercise by a state of its powers, and to the limitations which are imposed thereon by the Fourteenth Amendment, and by Section 10 of Article 1, of the United States Constitution.

2. It is believed that the decision of the lower court on the federal questions presented are not in accord with the previous decisions of this court deemed applicable, or, if such decisions are not applicable, that such questions have not heretofore been determined by this court.

3. It is believed to be of great importance and of widespread interest that this court should determine (a) the guiding principles and the extent to which a state may go in limiting the production of oil and gas, and particularly (b) whether a state has the power to conserve privately owned natural resources within the state for the benefit of the general public and deprive the private owners of the use and benefit thereof without compensation, and (c) whether the legislative power of the state extends to any greater limit than regulating and protecting private correlative rights in a common or overlapping source of supply as against waste or other conduct by one or more of the surface owners or operators which

injuriously affects the private rights of other surface owners or operators; also (d) the extent of the state's power to limit the production of privately owned natural resources on the ground of economic waste or for commercial or other reasons; (e) whether a state legislature must define what is prohibited in its attempted regulations on the subject, with sufficient certainty that those to whom the same are directed may know in advance what is permitted or prohibited; (f) whether it can create arbitrary and unreasonable statutory presumptions of guilt or violation of the law; and (g) other important federal questions.

4. These questions are of general interest and concern to all producers of oil and gas throughout the oil producing states at this time, and are also matters in which the federal administration has taken some interest. Sundry oil and gas legislation is pending in the legislatures of various oil producing states and there are widely divergent views as to the state's power in the premises, which would be largely authoritatively cleared up by a decision on the above federal questions. An effort is being made through different sources to devise uniform state legislation, and to limit the oil and gas production in the nation, as well as imports of oil from foreign countries, and for the proration (as distinguished from conservation) of the allowed national production amongst states, and allocating the production of each state amongst various fields, and, in turn, amongst the various properties, leases and wells in the various fields.

No separate brief is filed in support of this petition, it being believed that the brief on the appeal proceedings, and the decisions therein relied on, do not make it necessary.

Wherefore, your petitioners respectfully pray that a writ of certiorari be issued by, and under the seal of, this Honorable Court directed to the District Court of Appeal of the state of California, Second Appellate District, Second Division, commanding said court to certify and send to this court on a day certain to be therein designated a full and complete transcript of the record in said proceeding, to the end that the errors of which your petitioners complain herein may be reviewed and corrected by this court conformably to law.

Dated April 25, 1931.

BANDINI PETROLEUM COMPANY,
COMMODORE PETROLEUM COMPANY,
WILSHIRE OIL COMPANY, INC.,
WILSHIRE ANNEX OIL COMPANY,
AMBASSADOR PETROLEUM COMPANY,
Petitioners,

By ROBERT B. MURPHEY,
ASA V. CALL,
Counsel for Petitioners.

FILE COPY

APR 30 1

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1930.

No. [redacted] 43

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation; and Ambassador Petroleum Company, a corporation,

Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the judges thereof,

Appellees.

APPELLANTS' BRIEF IN OPPOSITION TO MOTION TO DISMISS OR AFFIRM, PETITION FOR WRIT OF CERTIORARI.

ROBERT B. MURPHEY,
ASA V. CALL,
Counsel for Appellants.

Parker, Stone & Baird Co., Law Printers, Los Angeles.

TOPICAL INDEX.

PAGE

I.

Limited Grounds of Motion and Tests to Be Applied 4

II.

Statement of the Case 6

III.

The Case Comes to This Court on an Admitted Statement of Facts 8

IV.

Admitted Facts Which Were Established by the Uncontradicted Evidence in the Superior Court 12

V.

Argument 20

Summary of the Argument 20

Point A. Prohibition Is Appellants' Proper Remedy 21

Point B. The Validity of the State Statute Involved Under the Federal Constitution Is to Be Determined by Its Operation and Effect as Applied to Appellants, and Appeal Rather Than Certiorari Is the Proper Remedy 28

Point C. The Facts Being Admitted by Demurrer and an Inquiry Thereof Being Essential to the Enforcement of the Federal Rights Asserted, This Court Will Examine Same and Draw Its Own Conclusions 29

Point D. Legislation Not Limited to the Regulation of Private Correlative Rights in a Common Source of Supply of Oil or Gas by Preventing Waste or Other Conduct by One or More of Them Which Injuriously Affects the Correlative Rights of Others in the Common Source of Supply but Which Is Directed to the Curtailment of Production Itself or to Commercial Conservation for the Benefit of the Consuming General Public, Is Repugnant to the "Due Process" Clause of the Fourteenth Amendment 30

Point E. The Statute as Applied to Appellants Constitutes a Taking of Appellants' Property for a Public Use Without Compensation and Without Due Process of Law, in Violation of the Fourteenth Amendment 46

PAGE

Point F. Under the Admitted Facts, the Extent of the Invasion of Appellants' Property Rights Is so Great, so Arbitrary, so Oppressive and Unreasonable, That It Goes Too Far Under the Police Power of the State 55

Point G. The Statute Involved Is Void for Uncertainty and Lack of a Sufficiently Definite Standard of Conduct Under the Due Process Clause of the Fourteenth Amendment 61

The construction of the statute involved by the highest courts of the state is so conflicting, uncertain and unsettled that this court should adopt its own view as to the standard of measure or unreasonable waste of natural gas prohibited, if ascertainable from the statute 61

The total invalidity of section 8d of the statute, upon which the state construction is based, renders the state construction without merit and also requires this court to adopt its own view of the statute 72

Whether this court adopts its own view or follows the construction adopted by the lower court or follows the latest decision by the Supreme Court of California, the statute is void for lack of a sufficient standard or measure of what constitutes "unreasonable waste of natural gas" to satisfy the due process clause of the Fourteenth Amendment 74

The insufficiency of the statute under the latest expression of the highest state court 78

1. Approaching the matter from the first of the three viewpoints expressed by the state courts 78
2. Approaching the matter from the second viewpoint 79
3. Approaching the matter from the viewpoint of the third of the three viewpoints expressed by the Supreme Court of the State of California 81
4. Applying all three viewpoints together 81

If this court adopts its own view of the statute the vice of the statute in failing to provide any ascertainable or sufficiently certain measure or standard of conduct, clearly appears 82

PAGE

The so-called "rule of reason" does not afford a valid statutory standard of conduct under the Fourteenth Amendment in a case like this 86

The uncertainty is not eliminated by reference to other provisions of the statute 99

The provision of section 8b of the statute, making the blowing or escape into the air of natural gas *prima facie* evidence of unreasonable waste, does not aid the statute 103

Recourse cannot be had to the statutes of other states to determine what is meant by "unreasonable waste of natural gas" in the California statute 104

The water cases cited by the lower court are not in point 105

The statute is not aided by the provisions for its enforcement through the courts 106

Point H. The "Prima Facie Evidence" Clause of the Statute Violates the "Due Process" Clause of the Fourteenth Amendment 107

Point I. The Statute Involved, as Applied to Appellants, Unconstitutionally Impairs Appellants' Lease Contracts 112

Point J. The Statute Involved, as Applied to Appellants, Denies to Appellants the Equal Protection of the Laws 114

Point K. If Appeal Was Improvidently Sought and Allowed, Then Certiorari Should Be Granted Upon the Papers Whereon the Appeal Was Allowed 121

Conclusion 123

TABLE OF CASES AND AUTHORITIES CITED.

CASES. PAGE

Abie State Bank v. Bryan, No. 63, Oct. Term 1930, 75 L. Ed. 420, 424 23
Adams v. New York, 192 U. S. 585 109
Allen v. Railroad Com., 179 Cal. 68 41
Ambassador Petroleum Company v. Superior Court, 79 Cal. Dec. 67 68
Ambassador Petroleum Co. v. Superior Court, 208 Cal. 667 23
Ancient Egyptian Arabic Order v. Michaux, 279 U. S. 737 30
Anderson v. Manchester Fire Assn., 59 Minn. 182, 60 N. W. 1095 85
Associated Pipe Line Co. v. Railroad Com., 176 Cal. 518 41
Baar v. Smith, 201 Cal. 87 23
Bacon v. Walker, 204 U. S. 311 ..... 31, 37, 39, 40
Bailey v. Alabama, 219 U. S. 219 109
Baltimore & Ohio R. R. Co. v. Maryland, 87 U. S. (20 Wall) 643 74
Barlow v. Security Trust & Savings Bank, 197 Cal. 263, 267 48
Bauserman v. Blunt, 147 U. S. 647 78
Beasley v. Engstrom, 31 Idaho 14, 16 Pac. 1145 41
Beidler v. South Carolina Tax Commission, Case No. 2, October Term, 1930, 75 L. Ed. 69, 70 ..... 9, 29
Bodcaw Lumber Co. v. Goode (Ark.), 254 S. W. 345, 29 A. L. R. 578 48
Boone v. Kingsbury, 77 Cal. Dec. 94 48
Branson v. Bush, 251 U. S. 182 49
Brinkerhoff-Faris Trust & Sav. Co. v. Hill, 281 U. S. 673 25
Broad R. P. Co. v. So. Carolina, 281 U. S. 537 23
Brookshire Oil Co. v. Casmalia etc. Co., 156 Cal. 211 48
Buchanan v. Warley, 245 U. S. 60 ..... 41, 49, 60
Burgess v. Seligman, 107 U. S. 20 61
Chandler v. Hart, 161 Cal. 405 ..... 17, 18, 48
Chicago, B. & Q. R. Co. v. Chicago, 166 U. S. 226, 234-236 ..... 25, 26
Chicago N. W. R. R. Co. v. Dey, 35 Fed. 866, 876 ..... 75, 85
Chicago R. I. & P. Ry. Co. v. Devine, 239 U. S. 52 5
Cleveland, C. C. & St. L. R. Co. v. Backus, 154 U. S. 439 49
Cline v. Frink Dairy Co., 274 U. S. 445 ..... 69, 75, 81, 84, 85, 86, 89, 90, 101, 102, 105
Commonwealth v. Maletsky, 203 Mass. 241 85
Commonwealth v. Trent, 117 Ky. 34 44

PAGE

Concordia Ins. Co. v. Bryan, Case No. 278, Oct. Term 1930, 75 L. Ed. 387, 391 61
Connally v. General Construction Co., 269 U. S. 385 ..... 84, 88
Cook v. State, 26 Ind. App. 278, 59 N. E. 489 85
Coppage v. Kansas, 236 U. S. 1 ..... 28, 51, 55, 60
Corn Products Refining Co. v. Eddy, 249 U. S. 427, 63 L. Ed. 689 28
Cotting v. Godard, 183 U. S. 79 117
Darling v. Newport News, 249 U. S. 540, 63 L. Ed. 79 28
Detroit Creamery Co. v. Kinnane (Mich.), 264 Fed. 845 85
Dobbins v. Los Angeles, 195 U. S. 223 60
Dowling v. Lankershire Ins. Co., 92 Wisc. 63, 65 N. W. 738 85
Duvall v. White, 46 Cal. App. 305 48
Edward Hines Yellow Pine Trustees v. Martin, 268 U. S. 458 61
Enterprise Irr. Dist. v. Farmers Canal Co., 243 U. S. 157 23
Eubank v. Richmond, 226 U. S. 137 118
Ex parte Kelso, 147 Cal. 609 ..... 41, 60
Ex parte McNulty, 77 Cal. 164 85
Ex parte Reed, 100 U. S. 13 26
Ex parte Virginia, 100 U. S. 339 25
Ex parte Yarbrough, 110 U. S. 651 25
Fairmont Creamery Co. v. Minnesota, 274 U. S. 1 123
Foster Fountain Packing Co. v. Haydel, 278 U. S. 1 57
Geer v. Connecticut, 161 U. S. 519 31
Graciosa Oil Co. v. Santa Barbara, 155 Cal. 140 48
Grayson v. Harris, 267 U. S. 352, 358 23
Grubb v. Public Utilities Commission, 281 U. S. 470 27
Hathorn v. Natural Carbonic Gas Co., 194 N. Y. 326 41
Havemeyer v. Superior Court, 84 Cal. 327, 401 ..... 8, 24
Hayes v. Missouri, 120 U. S. 68 117
Herminghaus v. So. Cal. Edison Co., 200 Cal. 81, 274 U. S. 728, 275 U. S. 486-487 ..... 41, 42, 43, 55, 60
Hevren v. Reed, 126 Cal. 219 8
Hewitt v. Board of Medical Examiners, 148 Cal. 590 85
Hill v. Smith, 260 U. S. 592 22
Home Ins. Co. v. Dick, 281 U. S. 397 22
Home Teleph. & Teleg. Co. v. Los Angeles, 227 U. S. 278 25
Hunter v. Pittsburgh, 307 U. S. 161, 176 5
In re Clarence Lockett, 179 Cal. 581 85
In re Opinion of Justices, 208 Mass. 619, 94 N. E. 1044 109
In re Peppers, 189 Cal. 687 ..... 69, 85

PAGE

In re Schmolke, 199 Cal. 42 85
In re Toyu Kee, 12 Haw. 164 85
In re Williams, 74 Cal. App. 331 86
International Harvester Co. v. Kentucky, 234 U. S. 216 ..... 84, 86
Interstate Amusement Co. v. Albert, 239 U. S. 560 30
Isom v. Rex Crude Oil Co., 147 Cal. 659 48
Jacobsen v. Superior Court, 192 Cal. 319 ..... 23, 24, 26
Klinger v. Missouri, 80 U. S. (13 Wall) 257 74
Lawton v. Steele, 152 U. S. 133-137 60
Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61 ..... 30, 37, 59
Long v. Superior Court, 102 Cal. 449 23
Louisiana R. & Nav. Co. v. Behrman, 235 U. S. 164, 59 L. Ed. 175 28
Louisville etc. R. R. Co. v. Commonwealth, 99 Ky. 132, 35 S. W. 129 ..... 69, 85, 86
Louisville & Nashville R. R. Co. v. Interstate Commerce Commission, 184 Fed. 118 77
Manley v. Georgia, 279 U. S. 1 ..... 109, 110, 111
Marin County v. Town of Sausalito, 168 Cal. 587 41
Maverick Oil Co. v. Powell, 237 U. S. 40 113
McClatchy v. Superior Court, 119 Cal. 413 23
McFarland v. American Sugar Ref. Co., 241 U. S. 79 ..... 42, 108, 117
Merchants Nat'l Bank v. Richmond, 256 U. S. 635, 65 L. Ed. 1135 ..... 28, 29
Missouri v. Taylor, 266 U. S. 200 25
Mt. Vernon-Woodberry etc. Co. v. Alabama I. P. Co., 240 U. S. 30 ..... 24, 107
Napa Valley Electric Co. v. Railroad Commission, 251 U. S. 366 25
New York *ex rel* Bryant v. Zimmerman, 278 U. S. 63, 67, 73 L. Ed. 184 ..... 25, 29
North Carolina R. Co. v. Zachary, 232 U. S. 248 22
Ohio Oil Co. v. Indiana, 177 U. S. 190 ..... 17, 30, 31, 32, 37, 38, 40, 48, 58, 59
Osborn v. Arkansas Oil & Gas Co., 103 Ark. 175 Annotated Note, 29 A. L. R. 586-589 ..... 18, 48
Pacific Gas & Electric Co. v. Police Court, 251 U. S. 22 25
Payne v. Neuval, 155 Cal. 46 48
Pennsylvania Coal Company v. Mahon, 260 U. S. 393 ..... 19, 41, 46, 49, 59, 60, 113
Pennsylvania R. Co. v. Public Service Commission, 250 U. S. 566 25

PAGE

People v. Associated Oil Company.....19, 58, 61, 62, 63, 67, 68, 70, 71
People v. Pace, 73 Cal. App. 548..... 85
Portneuf-Marsh Valley Canal Co. v. Brown, 274 U. S. 630..... 61
Postal Tel. etc. Co. v. Adams, 155 U. S. 689, 698, 39 L. Ed. 311 26
Postal Tel. Cable Co. v. Newport, 247 U. S. 464..... 30
Prudential Ins. Co. v. Cheek, 259 U. S. 530, 547.....122
Pumpelly v. Green Bay Company, 80 U. S. 166..... 49
Railroad Com. v. Los Angeles R. Corp., 280 U. S. 145..... 61
Re Peterson, 253 U. S. 300.....109
Rogers v. Hennepin, 240 U. S. 184..... 22
San Bernardino v. Riverside, 186 Cal. 7..... 42
Schaezlein v. Cabaniss, 135 Cal. 466..... 86
Scott v. McNeal, 154 U. S. 34..... 25
Small v. American Sugar Refining Co., 267 U. S. 233.....84, 85
State v. Board of Canvassers, 159 Wis. 216, 150 N. W. 542..... 85
State v. Boswick, 13 R. I. 211.....109
State v. Diamond, 27 N. M. 477, 20 A. L. R. 1527..... 85
State v. Johnson, 61 Kan. 803, 60 Pac. 1068.....106
Standard Chem. etc. Cor. v. Waugh, 231 N. Y. 51, 131 N. E. 566 85
Standard Oil Co. v. United States, 221 U. S. 1..... 89
Swiss Oil Corp. v. Powell, 199 Ky. 863, 251 S. W. 1007.....113
Terrace v. Thompson, 263 U. S. 197..... 49
Terre Haute & I. R. Co. v. Indiana *ex rel.* Ketcham, 194 U. S. 579 74
Texas Co. v. Daugherty, 107 Tex. 234, 176 S. W. 717, 719-721.. 48
Tonningsen v. Odd Fellows' Cem. Assn., 60 Cal. App. 568..... 23
Townsend v. State, 147 Ind. 624, 49 N. E. 14..... 31
Tozer v. United States, 52 Fed. 917.....85, 86
Truax v. Corrigan, 257 U. S. 312.....9, 29, 30, 116
Tyson & Bro. v. Banton, 273 U. S. 418..... 41
United States v. Bernstein, 267 Fed. 295..... 85
United States v. Brewer, 139 U. S. 278..... 85
United States v. Capital Traction Co., 34 App. D. C. 592, 19 Ann. Cas. 68..... 85
United States v. Cohen Grocery Co., 255 U. S. 81.....69, 82, 84, 86, 87, 97, 98
United States v. Pennsylvania R. Co., 242 U. S. 208.....81, 84, 86
United States v. Reese, 92 U. S. 214.....75, 84, 104
United States v. Sharp, Fed. Cas. 16,264, 27 Fed. Cas. 1041..... 85

PAGE
United States v. Trenton Potteries Co., 273 U. S. 392..... 90
Union Pacific R. Co. v. Public Service Commission, 248 U. S. 67, 69 30
Walls v. Midland Carbon Co., 254 U. S. 300.....31, 38, 39
Ward v. Krinsky, 259 U. S. 503..... 74
Ward v. Love County, 253 U. S. 17..... 74
Weed & Co. v. Lockwood, 255 U. S. 104..... 85
Weintraub v. Superior Court, 91 Cal. App. 763..... 23
West v. Kansas Natural Gas Co., 221 U. S. 228.....19, 31, 34, 35, 36, 37, 38, 41, 45, 47, 48, 51, 56
Western & A. R. Co. v. Henderson, 279 U. S. 639.....109, 111
Weston v. Charleston, 2 Pet. 449..... 25
Williams v. Standard Oil Company, 278 U. S. 235.....19, 41, 42, 45, 73, 102, 120
Windsor v. McVeigh, 93 U. S. 274, 282..... 26
Xenia v. Schmidt, 101 Ohio St. 437, 130 N. E. 24..... 85
Yick Wo v. Hopkins, 118 U. S. 356.....72, 84, 102, 117, 118

Authorities.

California Code of Civil Procedure, Section 1833.....103, 111
Cooley's Constitutional Limitations, 8th Ed., Vol. I, p. 583.....113
"Function of Natural Gas in the Production of Oil" by H. C. Miller, Senior Petroleum Engineer, U. S. Bureau of Mines.... 17
Mills and Willingham on Oil and Gas, pp. 18 and 26..... 18
Mills & Willingham, "The Law of Oil and Gas," 1926 Ed., pp. 20, 22 48
Report of the Federal Oil Conservation Board of May 27, 1926, at page 12..... 43
Section 237, U. S. Judicial Code, Act of Feb. 13, 1925, ch. 229, Sec. 1, 43 Stat. 937 (U. S. Code, title 28, Sec. 344)..... 5
Stat. 1929, Chap. 535, p. 927.....6, 75, 76, 99, 100, 120
1 Thornton's Law of Oil and Gas, par. 25a, p. 95..... 48
U. S. Judicial Code, Section 237a.....121
U. S. Judicial Code, Section 237b.....122
U. S. Judicial Code, Section 237(c).....122

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1930.
No. 852.

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation; and Ambassador Petroleum Company, a corporation,

Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the judges thereof,

Appellees.

APPELLANTS' BRIEF IN OPPOSITION TO MOTION TO DISMISS OR AFFIRM, PETITION FOR WRIT OF CERTIORARI.

(Note: All references are to the typewritten record filed with the clerk, as same has not yet been printed.)

Appellees' untimely motion to dismiss or affirm is, we respectfully submit, without merit and should be denied.

The statute involved, as construed and applied to the admitted facts, fairly bristles in severities that touch appellants and in the number of substantial federal questions involved, which are of far-reaching importance, not only to appellants but also to the entire oil and gas industry, which is interested in the question of how far the state can go under the police power in regulating the production of oil and gas and in conserving privately owned natural resources for the benefit of the general public, without compensation. There are also other important federal questions presented. The number, and the very nature, novelty, and importance of these federal questions require a somewhat longer brief than is ordinarily the case. While we have not, in the short time allowed by the rule of this court, by any means fully argued and presented the merits thereof, we have gone into the matter sufficiently, we believe, to show that the federal questions involved are of substantial character and require full argument and presentation and thorough consideration upon their merits by this court, and therefore, that the motions to dismiss or affirm should be denied.

I.

Limited Grounds of Motion and Tests to Be Applied.

Said motions and supporting brief are based solely upon the ground that no substantial federal question is involved on the appeal. Appellees thus impliedly admit and concede that there are no other grounds of attack on the jurisdiction of this court, and that this court should deny the motions if it finds a substantial federal question to be involved. However, the "Statement as to Jurisdiction on

Appeal" filed herewith affirmatively shows all of the various essentials of the jurisdiction of this court on this appeal under section 237, U. S. Judicial Code, Act of Feb. 13, 1925, ch. 229, Sec. 1, 43 Stat. 937 (U. S. Code, title 28, Sec. 344), reference to which statement is hereby made.

This court has many times said that it will not dismiss a writ of error (now appeal) unless the federal questions involved are "wholly frivolous" and are "unsubstantial" and are "devoid of all color of merit." (*Chicago R. I. & P. Ry. Co. v. Devine*, 239 U. S. 52; *Hunter v. Pittsburgh*, 307 U. S. 161, 176.) If the federal questions presented "require analysis and exposition" for their decision they withstand a motion to dismiss. Likewise, it is only where the appeal is manifestly taken for delay only, or the questions to be decided are so unsubstantial as not to need argument, that this court will entertain a motion to affirm. (Rule 7, par. 4.)

As pointed out in appellants' Statement as to Jurisdiction on Appeal, the record itself [R. 20-24, 98-126, 157-183], the opinion of the lower court [R. 333], the certificate of the lower court [R. 714] and even the stipulation of counsel [R. 721-2], clearly show that appellants have at all times claimed, in accordance with the local practice and procedure, that the California statute involved, and particularly as construed, applied and sought to be enforced against appellants, is repugnant to the "due process" and "equal protection" clauses of the Fourteenth Amendment and the impairment of contract clause of section 10 of Article I of the United States Constitution in the particulars set forth in their assignment of errors

[R. 676 *et seq.*]. Nor can it be doubted that the validity of said statute against said attacks was upheld, and all of such claims of appellants denied, by the lower court, either expressly or by necessary implication (see subdivs. *C* and *D* of Statement as to Jurisdiction on Appeal, giving definite citations to the record).

Appellants submit that the federal questions raised by the denial of these claims, as set forth in the said assignment of errors but more logically re-stated as set forth in appellants' Statement of Points to Be Relied Upon, are not only not frivolous but are so substantial as to require a *reversal* of the judgment of the lower court.

II.
STATEMENT OF CASE.

This case comes to this court by appeal to review a judgment by the District Court of Appeal of the State of California, Second Appellate District, Second Division, denying appellants' petition for a peremptory writ of prohibition to prevent the Superior Court of Los Angeles County from enforcing a preliminary injunction against appellants, or taking further proceedings against appellants, in an action brought by the state of California on relation of its Director of Natural Resources to enjoin the alleged "unreasonable waste of natural gas" by appellants and others in Santa Fe Springs oil field. The sole authority of said state official to institute the action, and of the Superior Court to entertain the same, is an amendatory statute of that state adopted in 1929 (Stat. 1929, p. 927) prohibiting "the unreasonable waste of natural gas" (Sec. 8b), and providing for the enforcement there-

of by proceedings before the state supervisor of oil and gas and appeal to the District Board of the operators, and suit to enforce the final order (Secs. 8d, 9, 10, 14a) or by direct suit in the Superior Court to enjoin the alleged "unreasonable waste of natural gas" (Sec. 14b) or by criminal proceedings (Sec. 21a). The pertinent parts of the statute, as amended, are printed as Appendix A to the Statement as to Jurisdiction filed herewith. The above sections are printed as Appendix A of the supplement to this brief.

By said petition for writ of prohibition there was drawn in question the validity of said statute, upon the ground that said statute, and particularly as construed, applied and sought to be enforced against appellants by paragraph numbered 3 of said preliminary injunction, is repugnant to the above mentioned clauses of the United States Constitution. [R. 20-27, 98-100, 115-122, 6, 157, 183, 283-286.] The alternative writ of prohibition, requiring appellees to show cause why a peremptory writ of prohibition should not issue, was issued on April 9, 1930 [R. 328], and the judgment denying the peremptory writ of prohibition was rendered on November 29, 1930. [R. 333-363½.] It has not yet been officially reported, but is found at 63 Cal. App. Dec. 1175, and at page 333 of the typewritten record not yet printed. A timely petition for rehearing was denied on December 27, 1930 [R. 364, 486], and a timely petition for a hearing of said cause by the Supreme Court of California was denied on January 26, 1931, on which date the judgment became final. [R. 487, 671½.] The appeal to this court was allowed on January 29, 1931. [R. 692.]

III.

The Case Comes to This Court on an Admitted Statement of Facts.

The allegations of the petition for prohibition [R. 3-29] are admitted to be true by the demurrer thereto [R. 331], which was the only return filed thereto. (*Hevren v. Reed*, 126 Cal. 219.) The granting of a writ of prohibition in California in a proper case is a matter of right *ex debito justitiae*, and is not discretionary.

Haverneyer v. Superior Court, 84 Cal. 327, 401.

The petition for writ of prohibition alleges certain facts which it is also alleged therein *appeared from the uncontradicted evidence introduced in the hearing before the Superior Court.* [R. 7-14.] In addition to this, the petition expressly adopted the allegations and denials of appellants' answer in the Superior Court, and re-alleged the same with the same force and effect as if set forth at length in said petition. [R. 6.] The allegations and denials of said answer [R. 127-185] are thus also admitted by the demurrer.

Since a summary of the uncontradicted and admitted facts is set forth in appellants' "Statement as to Jurisdiction on Appeal" under the subhead "Uncontradicted and Admitted Facts," for the sake of brevity and to avoid repetition the court is respectfully referred thereto.

Where, as here, the facts upon the basis of which Federal rights as asserted are set forth in the pleadings and are admitted by demurrer, this court is not bound by the statements or conclusions of the state court of last resort as to their effect, but will examine the facts as averred

and draw its own inferences as to their ultimate effect. *Truax v. Corrigan*, 257 U. S. 312, and cases therein cited fully establish this. This court will also examine the facts where such inquiry "is essential to the enforcement of a right suitably asserted under the Federal Constitution."

Beidler v. South Carolina Tax Commission, Case No. 2, October Term, 1930, 75 L. Ed. 69, 70.

For these reasons appellants do not agree with the statement in appellees' brief (p. 4) that "The facts of the case are fully and correctly stated in the opinion of the lower court," but earnestly pray that this court (as we believe, under its said decisions, is its duty to do) carefully and thoroughly consider at this point the uncontradicted and admitted facts hereinabove referred to, which are summarized in appellants' "Statement as to Jurisdiction on Appeal" as above stated.

The statement in appellees' brief (p. 9) that "The appellants were at all times wasting to the air in excess of 26,000,000 cubic feet of gas each average day" is not supported by the record. This statement is taken from the allegations of the complaint in the Superior Court alleging that appellants were then permitting to be "blown to the air" that amount of natural gas in the aggregate. [R. 57, Exh. A-A, 43.] These allegations were denied, with certain affirmative allegations relating thereto, in the answer of appellants [R. 139-141], which denials and allegations of the answer were incorporated and re-alleged in the petition for writ of prohibition in the District Court of Appeal [R. 6] and are admitted to be true by the demurrer of appellees thereto. Besides, under the statements of the lower court (as distinguished from the effect

of its action) the statute is not concerned with the amount of gas blown to the air, but only with its proper utilization in the production of oil. [R. 350-1, 363.] The Superior Court made no findings that any of appellants are wasting or unreasonably wasting any natural gas. The undisputed and uncontradicted facts alleged in the petition for writ of prohibition and admitted by the demurrer conclusively show to the contrary [R. 7-14, 6, 127-183], as do appellants' affidavits. [R. 185-263, 275-287.] The only finding which the Superior Court made was the finding "that there appears to be an unreasonable waste of natural gas in the Santa Fe Springs oil *field,*" considering the field as a whole. [R. 296.] This finding, the order shows on its face, was not based upon any consideration of the proper utilization of gas by any of the operators in the field in producing oil or upon any waste or other conduct of one or a portion of the operators injuriously affecting the correlative rights of other owners or operators in the field, but was based solely on the amount of gas blown to the air from the field as a whole. [R. 296.] This gas, that court said, might be conserved by limiting the production of gas from the whole field "to a quantity reasonably in excess of present outlets for beneficial use above ground," which the court then fixed at 285,000,000 cubic feet per day. [R. 296.] The admitted sole purpose of this decrease was to reserve it for the future use of the general consuming public above ground for light, heat and fuel. [R. 23.]

The said provisions of the order itself show, on their face, that this was the purpose of the decrease in the allowed gas production from the field, for they show the allowed gas produced is based solely on the "*present out-*

lets for beneficial use above ground" for light, heat and fuel. The matter of whether any one or more operators are taking an undue portion of oil or gas or doing anything injuriously affecting the rights or operations of others is not taken into account.

The amount of allowed gas production was arbitrarily allocated amongst the different leases or properties in the field on the basis of 1200 cubic feet of gas for each barrel of estimated potential oil production, without any consideration or regard as to whether the particular wells in the field were operating at a proper or improper gas-oil ratio. [R. 295-296, 298 *et seq.*]

The Superior Court then provided that the defendants be enjoined until the further order of the court as follows:

> "1. From blowing, releasing or permitting any natural gas to escape into the air from any well or wells in the Santa Fe Springs Oil Field before the removal of the gasoline from such natural gas.
>
> "2. From operating any well producing natural gas in the Santa Fe Springs Oil Field except while exercising a high degree of care in the selection and adjustment of appliances and in the use thereof for the purpose of keeping each producing well in its 'optimum gas-oil ratio'—the term 'optimum gas-oil ratio' being defined as the smallest number of cubic feet of gas which can be produced with each barrel of oil from the same well at the same time.
>
> "3. From producing more net formation gas on the average day of each seven (7) day period from any lease or other property unit than is set forth in the 'Allowed Gas Production' column in the schedule following:" [R. 297 *et seq.*]

It is the construction and application of the statute in paragraph 3, which was, on its face, based solely upon the *"present gas outlets for beneficial use above ground" for*

light, heat and fuel, and limited the gas *production* of appellants, and others in the field, by so greatly decreasing the same, *solely "for the purpose of conserving such natural gas for the benefit of the general public,"* that appellants particularly challege under the Federal Constitution.

Without attempting to review or summarize the uncontradicted and admitted facts alleged in the petition and admitted by the demurrer thereto, which are summarized in appellants' "Statement as to Jurisdiction on Appeal," to which we have referred the court, we wish at this point to stress and particularly call the court's attention to the following:

IV.

Admitted Facts Which Were Established by the Uncontradicted Evidence in the Superior Court.

No natural gas is being produced by any of appellants from any oil well or wells in said oil field in any quantity exceeding a reasonable proportion to the amount of oil produced therefrom, or in a quantity more than is reasonably or necessarily required in the production of oil therefrom in accordance with efficient methods and appliances. [R. 8, 12.] *Each of the wells of appellants in said field is efficiently operated, and is so operated that it does not injuriously affect the operations of others owning and/or operating wells in said field.* [R. 13.] The gas-oil ratio of each well producing oil and gas is a fair index to the efficiency of such well in the proper utilization of natural gas in the production of oil, and *the gas-oil ratio of the wells of appellants is the third lowest amongst the nine largest producers of oil in said field.* [R. 13.]

Each of their said wells was drilled and equipped in accordance with the best known methods, appliances and equipment, and each of them has been and is equipped with casings of sufficient strength, all safety devices that are necessary, all in accordance with the highest skill and best methods known to the industry. Each of said wells has been so drilled, completed and operated, and is so operated, as to prevent, as far as possible, damage to underground petroleum and gas deposits from infiltrating water and other causes and loss of petroleum and/or natural gas, and so as not to interfere with, injure or damage the interests or rights of neighboring property owners, lessees or operators. [R. 6, 155-156.]

At the time of the preliminary injunction appellants were producing 19,554 barrels of oil per day, and the amount of gas reasonably required to be *utilized* to flow and lift that amount of oil to and out of the wells was 57,120,000 cubic feet per day under the most efficient methods, as aforesaid. [R. 10-11.] The market value of said daily oil production was $31,286.40. In addition to this most valuable, reasonable and efficient *utilization* of their natural gas production in producing said quantity and value of oil, said natural gas so utilized was and is *utilized* a *second* time in the manufacture of casinghead gasoline of the approximate value of $3,000.00 per day. [R. 12.] The greater part of the resulting dry natural gas which remained was further utilized a *third* time for fuel, field and other purposes in the operations of appellants, and so much as could be sold was sold [R. 12] at the prevailing price of 5¢ per thousand cubic feet. [R. 19.] There was and is no further available means to any of appellants for any further utilization of

the remaining residual dry gas (amounting to less than 40% of its production and which had already been twice used for highly beneficial purposes), and it had and has no market value [R. 12]; and, notwithstanding diligent efforts so to do, none of appellants was able to sell or even give it away. [R. 12.] Gas must be used as produced, and cannot be stored except at a prohibitive cost. [R. 154-156, 6.] By reason of these premises, appellants are compelled, after making the aforesaid manifold utilizations thereof, to release and permit the remaining residual dry gas to escape into the air. [R. 12-13.]

Notwithstanding these admitted facts established by uncontradicted evidence [R. 7-14], the Superior Court, on March 19, 1930, acting under the supposed authority of the statute under review "*and for the sole purpose of conserving such natural gas for the benefit of the general public*" [R. 23], made its injunctive order by the terms of which appellants were required to curtail their production of gas from 57,120,000 to 27,187,000 cubic feet per day. [R. 16, 268, 309.] This latter amount is only approximately 48% of the gas required to produce the amount of oil which appellants were then producing in operating their wells efficiently at their optimum gas-oil ratios, which were amongst the lowest in the field, and so as not to injuriously affect the operations of others owning and/or operating wells in said field. The order of March 28, 1930, modifying the preliminary injunction to provide for new wells coming in since the original order, did not substantially change the allowed gas production to appellants, which was slightly increased to 28,160,000 cubic feet per day. [R. 16, and schedule at R. 18.]

The amount of oil which appellants can produce with the allowed gas production under the order as modified does not exceed 10.211 barrels per day, which requires the shutting in and killing of many wells (of the average cost of $150,000.00 each), resulting in serious, permanent and irreparable injury. [R. 13-15.] This was demonstrated by appellants' *bona fide* attempt to comply with the order before instituting the prohibition proceedings. [R. 16-19.] The decrease in the value of appellants' daily oil production alone under the order as modified amounts to approximately $12,500.00 per day, to say nothing of permanent injury and damage to its wells pinched back, shut in and killed, and the loss in value of casinghead gasoline manufactured from its gas production, whereas the remaining residual natural gas blown to the air by appellants and remaining after its manifold and most beneficial utilizations, as foresaid, had no value and cannot be sold or even given away. As already stated, it was admittedly produced without injuriously affecting the other operators and/or owners in the field. If a market could have been found therefor at the prevailing price, the value would not have exceeded $1,300.00 per day, a ratio of about 1 to 10, compared to appellants' loss of $12,500.00 per day in oil alone. Since this gas had no further use or actual value, the disproportion is as "nothing" is to $12,500. All of this decrease in the allowed gas production and resulting loss and permanent and irreparable injury, the demurrer admits, was solely "for the purpose of conserving such natural gas for the benefit of the general public" [R. 23], and without any compensation or recourse whatsoever to appellants therefor.

Appellees (wandering outside of the record) have included in their brief and in the supplement thereto various semi-official and private reports which are not within the judicial knowledge of this court. It is submitted that the particular facts upon the basis of which this case is to be decided are those alleged in the petition for writ of prohibition, [R. 3-29, 127-185, 6 par. 4] which are admitted by the demurrer. There are no material facts of which this court can properly take judicial knowledge set forth by appellees which are in conflict with the admitted facts alleged in the said petition. The allegations and denials of the answer which are incorporated in said petition [R. 6], and are admitted by the demurrer, show the very limited extent to which the general consuming public is dependent upon natural gas produced in Santa Fe Springs [R. 144-151], the favorable comparison in low cost and fuel value of the fuel oil, artificial gas, hydro-electric and steam-generated electric energy extensively used in competition with natural gas in Southern California, [R. 145-6]; and also that the opening of a well into any oil and gas zone in said field does not disturb or reduce the pressure of the gas in all parts of the zone but only in the immediate vicinity of the well [R. 6, 136, 153].

The general technical data in Report III of the Federal Oil Conservation Board, printed in the Supplement to Appellees' Brief (pp. 70-71, 76-77) of which appellees ask this court to take judicial notice, show that due to the variations in thickness, compactness, texture and porosity of the so-called oil sands (which in reality are like rock), in the character of gas and oil, in gas pressure, and many

other factors, a study of each individual well is necessary; also that the gas-oil ratio is a working index of the efficiency of any well, *i. e.,* the production of "the greatest amount of oil with the minimum expenditure of gas energy." In this connection at pages 51, 56 and 59 of "Function of Natural Gas in the Production of Oil," by H. C. Miller, Senior Petroleum Engineer, U. S. Bureau of Mines; (a report of said Bureau in cooperation with the Division of Development and Production of the American Petroleum Institute) it is said that theoretically, and in the opinion of operators generally, the largest ultimate recovery of oil from the ground is obtained by close spacing and rapid drilling of wells. The table on page 59 shows 60% to 100% greater ultimate recovery of oil per acre. Such practice takes the oil more nearly from the place where Nature stored it, thus requiring less gas energy to move it to the well and leaving less oil adhering in the minute interstices of the producing compact formation.

In fact, this formation in Santa Fe Springs is so compact that when a well penetrates the formation the release of the oil and gas held in solution under great pressure does not affect the pressure throughout the field, but only in the immediate vicinity of the well [R. 6, 152-153] within a radius of 50 to 100 feet. [R. 277.] The Supreme Court of California took judicial notice that generally the maximum drainage area would not exceed four or five acres. (*Chandler v. Hart,* 161 Cal. 405, 418.) Scientific knowledge of underground conditions under which oil and gas exist has increased so greatly since the time of the *Ohio Oil Co.* case and the earlier cases, that it is now generally recognized that such deposits in their

original state in an undrilled field are stationary and that there is no lateral movement; also that the extent of the drainage of oil and gas is not great and varies somewhat, depending on the gas pressure, the porosity of the formation, the viscosity of the oil, and many other factors, and that these substances do not percolate freely underground.

See:

Mills and Willingham on Oil and Gas, pp. 18 and 26;

Chandler v. Hart, 161 Cal. 405, 418;

Bodcaw Lumber Co. v. Goode (Ark.), 254 S. W. 345, 29 A. L. R. 518;

Osborn v. Arkansas etc. Oil & Gas Co., 103 Ark. 175

If this court can take judicial notice of the statements in Appendices D, E, F, G and H, it can and should read the entire documents and not merely isolated extracts, and should also read the scientific facts in the report to the Superior Court presented on the witness stand by Dr. Stanley C. Herold, of Stanford University, who was called by opposing counsel as a qualified geologist (printed as Appendix B of Supplement), and the technical data in the affidavits. [R. 205-263.]

The general increase in the use and need of natural gas by the public generally is far less than the current supply in California incidental to the efficient production of oil and far less than opposing counsel contend [Supplement to Appellees' Brief, p. 36; R. 144-151, 242-263.] The increase in the demand therefor in some areas is immaterial, for, assuming the importance to the consuming general public of natural gas for light, heat and fuel, as

against fuel oil, artificial gas, coal, electric energy, etc., and assuming that "the public are warranted in having a feeling of concern" in respect to the continued maintenance of the supply and of the business of producing same, still this does not mean that such business or the property involved is "affected with a public interest" (*Williams v. Standard Oil Company*, 278 U. S. 235, 240) or justify the state through any of its departments in depriving the owners of the present use thereof without compensation for the purpose of reserving the same in the ground for the future use and benefit of the general public.

Pennsylvania Coal Company v. Mahon, 260 U. S. 393;

West v. Kansas Natural Gas Co., 221 U. S. 229, and other cases hereinafter cited.

In order to avoid repetition, the opinion of the District Court of Appeal in the case at bar, and the two later opinions of the Supreme Court of California in *People v. Associated Oil Company* [set forth in Appendices B and C in the Supplement to Appellees' Brief] will be discussed during the course of the argument and particularly under Point G. The latter two opinions did not involve appellants—contrary to what might be inferred from appellees' brief (p. 4).

V.
ARGUMENT.

SUMMARY OF THE ARGUMENT.

POINT A.

Prohibition Is Appellants' Proper Remedy.

The conclusion of the lower court that the Federal questions involved were properly raised by prohibition is conclusive, and is also in accord with previous decisions of this court. A state may not by any of its agencies, including its judicial branch, disregard or act in violation of the prohibitions of the Fourteenth Amendment.

POINT B.

The Validity of the State Statute Involved Under the Federal Constitution Is to Be Determined By Its Operation and Effect as Applied to Appellants, and Appeal Rather Than Certiorari Is the Proper Remedy.

POINT C.

The Facts Being Admitted by Demurrer and an Inquiry Thereof Being Essential to the Enforcement of the Federal Rights Asserted, This Court Will Examine Same and Draw Its Own Conclusions.

POINT D.

Legislation Not Limited to the Regulation of Private Correlative Rights in a Common Source of Supply of Oil or Gas by Preventing Waste or Other Conduct by One or More of Them Which Injuriously Affects the Correlative Rights of Others in the Common Source of Supply But Which Is Directed to the Curtailment of Production Itself or to Commercial Conservation for the Benefit of the Consuming General Public, Is Repugnant to the "Due Process" Clause of the Fourteenth Amendment.

POINT E.

The Statute as Applied to Appellants Constitutes a Taking of Appellants' Property for a Public Use Without Compensation and Without Due Process of Law, in Violation of the Fourteenth Amendment.

POINT F.

Under the Admitted Facts, the Extent of the Invasion of Appellants' Property Rights Is So Great, So Arbitrary, So Oppressive and Unreasonable, That It Goes Too Far Under the Police Power of the State.

POINT G.

The Statute Involved Is Void for Uncertainty and Lack of a Sufficiently Definite Standard of Conduct Under the Due Process Clause of the Fourteenth Amendment.

POINT H.

The "Prima Facie Evidence" Clause of the Statute Violates the "Due Process" Clause of the Fourteenth Amendment.

POINT I.

The Statute Involved, as Applied to Appellants, Unconstitutionally Impairs Appellants' Lease Contracts.

POINT J.

The Statute Involved, as Applied to Appellants, Denies to Appellants the Equal Protection of the Laws.

POINT K.

If Appeal Was Improvidently Sought and Allowed, Then Certiorari Should Be Granted Upon the Papers Whereon the Appeal Was Allowed.

POINT A.

Prohibition Is Appellants' Proper Remedy.

The lower court did not hold that prohibition is not appellants' remedy. On the contrary the lower court held that prohibition is the proper remedy to question the con-

stitutionality of the order of the Superior Court applying the statute involved to appellants, and that the federal questions raised in the petition for writ of prohibition were properly raised by writ of prohibition and went to the point that the Superior Court was acting in excess of its jurisdiction, for it proceeded, without questioning the procedure, to decide the federal question of whether the statute was void under the due process clause of the Federal Constitution for lack of a sufficiently definite standard or measure of what is prohibited by the prohibition against the "unreasonable waste of natural gas" [R. 336-357], and also the federal question of whether the statute as construed and applied against appellants operated to take appellants' property for a public use without compensation and without due process of law in violation of the Fourteenth Amendment. [R. 357-361.]

This being true, the *issue* of whether these federal *questions* which were expressly or necessarily passed upon by the judgment of the lower court were properly raised by the writ of prohibition proceedings, is not open to appellees in this court. In *North Carolina R. Co. v. Zachary*, 232 U. S. 248, 257, this court said that where

> "the highest court of the state either decided or assumed that the record sufficiently presented a question of Federal right, and decided against the party asserting that right, the decisions of this court render it clear that it is our duty to pass upon the merits of the Federal question."

It is enough to say that the lower court treated the federal questions as open and decided them (*Home Ins. Co. v. Dick*, 281 U. S. 397, 407; *Hill v. Smith*, 260 U. S. 592, 594; *Rogers v. Hennepin*, 240 U. S. 184, 188.) A

non-federal ground (if such it be) which might have been considered by the state court, but was not, or, which is inseparably interwoven with a Federal question, or which does not have a fair or substantial basis, is of no consequence and cannot be raised in this court to defeat its jurisdiction.

Grayson v. Harris, 267 U. S. 352, 358;

Abie State Bank v. Bryan, No. 63, Oct. Term 1930, 75 L. Ed. 420, 424;

Enterprise Irr. Dist. v. Farmers Canal Co., 243 U. S. 157;

Broad R. P. Co. v. So. Carolina, 281 U. S. 537.

In truth, the lower court was correct in assuming that prohibition is appellants' proper remedy. Many California decisions establish the rule that *a court which is proceeding in violation of the express or implied mandate of a constitution or statute, or which grants to or takes away from a party rights which a constitution or statute expressly or impliedly provides shall not be granted or taken away, is exceeding its jurisdiction, even though it otherwise has jurisdiction of the subject matter and the parties, and prohibition is the proper remedy.* Such action constitutes more than mere error in the exercise of jurisdiction, for, under the authorities, the court thereby exceeds its jurisdiction. (*Jacobsen v. Superior Court,* 192 Cal. 319, 330-2; *Baar v. Smith,* 201 Cal. 87, 100-102; *McClatchy v. Superior Court,* 119 Cal. 413, 420; *Toningsen v. Odd Fellows' Cem. Assn.,* 60 Cal. App. 568; *Weintraub v. Superior Court,* 91 Cal. App. 763; *Ambassador Petroleum Co. v. Superior Court.* 208 Cal. 667, 671; *Long v. Superior Court,* 102 Cal. 449, 453, 455.)

Many other cases might be cited. In the second and last of these cases the trial court granted "too much" relief. The *Jacobsen* case involved a *preliminary injunction* in a suit in equity over which the court had jurisdiction of the parties and the subject matter, but which was held to be in excess of its jurisdiction and not mere error, in that it deprived the defendant of his property for public use without just compensation and without due process of law. The similarity to this case is great; the case is almost on all fours. The court also held that the remedy by appeal or *supersedeas* under facts (192 Cal. 330) almost identical to those alleged in the case at bar [R. 25-27] did not afford a plain, speedy or adequate remedy. (192 Cal. 330.)

The granting of a writ of prohibition to a party injuriously affected bringing himself clearly within the law is not discretionary with the court but a matter of right *ex debito justitiae.*

Havemeyer v. Superior Court, 84 Cal. 327, 401.

That the federal questions involved were properly raised by a writ of prohibition is also in accord with the previous decisions of this court (*Mt. Vernon-Woodberry etc. Co. v. Alabama I. P. Co.,* 240 U. S. 30, 31-32), where this court refused to dismiss a writ of error from a judgment of the highest court of Alabama denying a writ of prohibition to prevent a court from proceeding to enforce a state statute authorizing condemnation proceedings which it was alleged contravened the Fourteenth Amendment in that the purpose of the condemnation was not a public one.

See, also:

Missouri v. Taylor, 266 U. S. 200;

Pacific Gas & Electric Co. v. Police Court, 251 U. S. 22;

Weston v. Charleston, 2 Pet. 449;

Chicago, B. & Q. R. Co. v. Chicago, 166 U. S. 226, 234-236;

Napa Valley Electric Co. v. Railroad Commission, 251 U. S. 366;

New York ex rel. Bryant v. Zimmerman, 278 U. S. 63, 65;

Ex parte Yarbrough, 110 U. S. 651.

The Fourteenth Amendment and the other provisions of the Federal Constitution invoked by appellants are directed to state action by its legislative, executive or *judicial* branches. (*Brinkerhoff-Faris Trust & Sav. Co. v. Hill,* 281 U. S. 673; *Home Teleph. & Teleg. Co. v. Los Angeles,* 227 U. S. 278; *Scott v. McNeal,* 154 U. S. 34; *Ex parte Virginia,* 100 U. S. 339, 346-347.) These constitutional provisions not only grant rights to the parties litigant which it is the *duty* of state courts to enforce, but are directed to state action through its judicial branch, the mandate of which that branch has no *power* to ignore. (See above California and federal citations.) To hold otherwise would put the state court above the Federal Constitution. No state can give to its courts power to violate the Federal Constitution. (*Pennsylvania R. Co. v. Public Service Commission,* 250 U. S. 566.) This prohibition against judicial action by a state court is even stronger than when imposed by a state statute or constitution. Under the decisions above cited it makes no

difference if the state court be sitting as a court of equity, or if the order in violation of the mandate of the Federal Constitution be a preliminary injunction. (*Jacobsen v. Superior Court, supra.*) In fact, the sole authority of the Superior Court was derived from the statute. [R. 363, p. 22 of Supplement to Appellees' Brief.]

The preliminary injunction invading appellants' asserted federal rights was just as disastrous as, and for all practical purposes is, a final injunction. "The substance and not the shadow determines the validity of the exercise of the power." (*Postal Tel. etc. Co. v. Adams,* 155 U. S. 689, 698, 39 L. Ed. 311, 316.) Though the court may possess jurisdiction of a cause, of the subject matter and of the parties, it is still limited in its modes of procedure and in the extent and character of its judgments; there must be jurisdiction to give the judgment rendered, as well as to hear and determine the case. A state court has no power to enforce an unconstitutional statute or to render or enforce a judgment in violation of the Constitution under the admitted facts. The mere form of the proceeding instituted against the owner, even if he be admitted to defend, cannot convert judicial action into due process of law if the necessary result be to deprive him of his property without compensation.

Chicago, B. & Q. R. Co. v. Chicago, 166 U. S. 226, 234-236;

Windsor v. McVeigh, 93 U. S. 274, 282;

Ex parte Reed, 100 U. S. 13;

Jacobsen v. Superior Court, 192 Cal. 319, and other cases above cited, and cases therein referred to.

Since, therefore, the lower court not only correctly assumed that the federal questions hereinafter discussed were properly before it for decision, and actually decided them, but also because such federal questions presented on this appeal were necessarily involved, and were controlling in its decision, this court's jurisdiction is complete. (*Grubb v. Public Utilities Commission,* 281 U. S. 470, 477-8, and cases above cited.) The lower court, in reaching its decision that the Superior Court had "jurisdiction to determine what is an unreasonable waste" of natural gas, actually decided, and also had to decide, (a) the federal question presented on this appeal, whether the statutory prohibition against "unreasonable waste of natural gas" is uncertain and devoid of a sufficient standard or measure of the conduct to satisfy the due process clause of the Fourteenth Amendment; and (b) the other federal questions presented on this appeal, *viz.*: whether under the admitted facts presented in the petition for writ of prohibition the statute, particularly as construed and applied and sought to be enforced against appellants, is in conflict with specific clauses of the Federal Constitution and whether the lower court properly denied the rights asserted by appellants thereunder. These Federal questions were inseparably interwoven with the question of the court's jurisdiction, and were expressly decided as to most of them, and as to the others, were necessarily decided, by the lower court, in denying the peremptory writ of prohibition. Appellants are therefore entitled to have the Federal questions presented decided by this court on their merits.

POINT B.

The Validity of the State Statute Involved Under the Federal Constitution Is to Be Determined by Its Operation and Effect as Applied to Appellants, and Appeal Rather Than Certiorari Is the Proper Remedy.

"When a party appeals to this court for the protection of rights secured to him by the Federal Constitution, the decision is not to depend upon the form of the state law, nor upon its declared purpose, but rather upon its operation and effect as applied and enforced by the state; and upon these matters this court cannot, in the proper performance of its duty, yield its judgment to that of the state court." (*Coppage v. Kansas*, 236 U. S. 1, 14-15, 59 L. Ed. 441, 446; *Corn Products Refining Co. v. Eddy*, 249 U. S. 427, 63 L. Ed. 689; *Louisiana R. & Nav. Co. v. Behrman*, 235 U. S. 164, 171, 59 L. Ed. 175.) In the case last cited this court said that in determining what effect has been given to a statute

> "This court is not limited to the mere consideration of the language of the opinion of the state court" (p. 171).

A decision of the highest court of the state against the contention that the operation of the state statute involved as construed and applied to an appellant is to deprive him of his property without due process of law, involves a federal question properly raised by appeal rather than by *certiorari*. (*Darling v. Newport News*, 249 U. S. 540, 63 L. Ed. 79; *Merchants Nat'l Bank v. Richmond*, 256 U. S. 635, 65 L. Ed. 1135.) This is also true if the necessary effect of the judgment is to deny

a federal right claimed, even though the ruling be not put upon that ground.

New York ex rel Bryant v. Zimmerman, 278 U. S. 63, 67, 73 L. Ed. 184, 187.

POINT C.

The Facts Being Admitted by Demurrer and an Inquiry Thereof Being Essential to the Enforcement of the Federal Rights Asserted, This Court Will Examine Same and Draw Its Own Conclusions.

This court on writ of error to or appeal from the state court, in a case where the issue is whether a state statute in its application to facts which are set out in the pleadings and are admitted by the demurrer violates the Constitution, must examine and analyze the facts as averred and draw its own inferences as to their ultimate effect, and is not bound by the conclusion of the highest state court in this regard.

Truax v. Corrigan, 257 U. S. 312, 324-325, and cases there cited;

Merchants National Bank v. Richmond, 256 U. S. 635, 638.

It is the duty of this court on appeal or writ of error proceedings to a state court to inquire into the facts where such inquiry is essential to the enforcement of a right suitably asserted under the Federal Constitution (*Beidler v. South Carolina Tax Commission*, Advance Opinions, Case No. 2, Oct. Term 1930, 75 L. Ed. 69, 70, and cases there cited), or where it is claimed that a federal right set up has been wrongly denied and in which the state court has put its decision on a finding that the asserted

federal right has no basis in point of fact, or when the conclusion of law and findings of fact are so intermingled as to make inquiry necessary, in order to pass upon the federal question involved (*Truax v. Corrigan, supra*), or where there is ground for the insistence that a federal right has been denied as the result of a finding that is without support in the evidence. (*Union Pacific R. Co. v. Public Service Commission,* 248 U. S. 67, 69; *Interstate Amusement Co. v. Albert,* 239 U. S. 560.) When the basis of facts upon which the state court rests its decision denying the asserted federal right has no support in the record, it is the duty of this court to review and correct the error.

Postal Tel Cable Co. v. Newport, 247 U. S. 464;
Ancient Egyptian Arabic Order v. Michaux, 279 U. S. 737, 745-746.

POINT D.

Legislation Not Limited to the Regulation of Private Correlative Rights in a Common Source of Supply of Oil or Gas by Preventing Waste or Other Conduct by One or More of Them Which Injuriously Affects the Correlative Rights of Others in the Common Source of Supply but Which Is Directed to the Curtailment of Production Itself or to Commercial Conservation for the Benefit of the Consuming General Public, Is Repugnant to the "Due Process" Clause of the Fourteenth Amendment.

The foregoing proposition, we submit, is fully established by the previous decisions of this court.

Ohio Oil Company v. Indiana, 177 U. S. 190;
Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61, 73-77;

West v. Kansas Nat. Gas Co., 221 U. S. 229, 246;
Bacon v. Walker, 204 U. S. 311;
Walls v. Midland Carbon Co., 254 U. S. 300.

Ohio Oil Company v. Indiana, supra, the leading case on the basis of the legislative power, arose on writ of error to the Supreme Court of Indiana to review a decision affirming a judgment sustaining a statute of that state which made it unlawful for the owner of any gas or oil well to allow or permit the flow of gas or oil from any such well to escape into the open air without being confined in such well or proper pipes or other safe receptacle, for a longer period than two days next after the gas or oil shall have been struck in such well. An examination of the decision of the Supreme Court of Indiana in this case, as well as *Townsend v. State,* 147 Ind. 624, 49 N. E. 14 (upon which this court said the state court rested its decision), shows that the immense importance of natural gas to the people of Indiana was stressed. So the state court *held that the purpose of the statute was to conserve this natural resource for the people of the state,* and declared the extraordinary rule that there was an absolute analogy between oil and gas and wild animals and fish, and that before the substance was reduced to possession the state in its sovereign capacity was the proprietor, which theory would make the power of regulation by the state unlimited even to the point of an absolute prohibition against reducing the same to possession. (*Geer v. Connecticut,* 161 U. S. 519, 525.) The notion of correlative rights and obligations between owners in the same pool was completely ignored, the state court ground-

ing its decision squarely on the proposition that the statute was designed to promote the *public* welfare. The court concluded its opinion by saying: "We therefore conclude that the facts stated in the complaint make it a case of a *public nuisance,* which the appellant has a right to have abated by injunction." In short, the state court took the view that the statute concerned *public* and not *private* rights.

This court, however, in sustaining the statute, upheld it upon the state's power to regulate the private correlative rights of owners in the same field, and not upon the ground of public welfare. The decision of this court stands in direct opposition to the holding of the Indiana court and completely repudiates the position of the Supreme Court of Indiana, that the basis of the legislative power is to protect public rather than private rights. This court, after examining Indiana decisions and pointing out the minority rule of property which exists in that state on the subject of oil and natural gas, and stating that while there was an *analogy* between animals *ferae naturae* and mineral deposits of oil and gas, there is no *identity* between them, said:

> "* * * In things *ferae naturae* all are endowed with the power of seeking to reduce a portion of the *public property* to the domain of private ownership by reducing them to possession. *In the case of natural gas and oil no such right exists in the public. It is vested only in the owners in fee of the surface of the earth within the area of the gas field.* This difference points at once to the distinction between the power which the lawmaker may exercise as to the two. In the one, as the public are the owners, every one may be absolutely prevented from seeking to reduce to possession. No devesting of private

property under such a condition can be conceived, because the public are the owners, and the enacting by the state of a law as to the public ownership is but the discharge of the governmental trust resting in the state as to property of that character. *Geer v. Connecticut*, 161 U. S. 519, 525, 40 L. Ed. 793, 795, 16 Sup. Ct. Rep. 600. *On the other hand, as to gas and oil the surface proprietors within the gas field all have the right to reduce to possession the gas and oil beneath. They could not be absolutely deprived of this right which belongs to them without a taking of private property.* But there is a coequal right in them all to take from a common source of supply the two substances which in the nature of things are united, though separate. It follows from the essence of their right and from the situation of the things as to which it can be exerted, that the use by one of his power to seek to convert a part of the common fund to actual possession may result in an undue proportion being attributed to one of the possessors of the right to the detriment of the others, or by *waste by one or more to the annihilation of the rights of the remainder. Hence it is that the legislative power,* from the peculiar nature of the right and the objects upon which it is to be exerted, *can be manifested for the purpose of protecting all the collective owners, by securing a just distribution, to arise from the enjoyment, by them, of their privilege to reduce to possession, and to reach the like end by preventing waste. * * * Viewed, then, as a statute to protect or to prevent the waste of the common property of the surface owners,* the law of the state of Indiana which is here attacked because it is asserted that it devested private property without due compensation, in substance, is *a statute protecting private property and preventing it from being taken by one of the common owners without regard to the enjoyment of the others.*" (Italics ours.)

177 U. S. 190, 209-210.

From the clear statement of this court there can be no doubt but that *the basis for the legislative power is the*

protection of the private correlative rights of the surface owners in a common source of supply by preventing waste or other conduct by one or more of them which injuriously affected the private correlative rights of others in the same field; that no right exists in the public to the oil and gas in such field, but title thereto "is vested only in the owners in fee of the surface of the earth within the area of the gas field: that they could not be deprived thereof" without a taking of private property. From these conclusions the proposition above stated as *Point D* of this brief necessarily follows and is fully established.

The decision of this court in *West v. Kansas Nat. Gas Co., supra,* eliminates any possible doubt which might exist on the subject. In that case a statute of Oklahoma prohibiting the construction of pipelines for natural gas for the transportation of such gas by such lines, except by domestic corporations whose charters shall provide that the gas shall be only transported between points in the state and containing other provisions designed to conserve deposits of natural gas within the state for the future benefit and welfare of the citizens of that state, was held unconstitutional not only because it unconstitutionally interfered with interstate commerce, but *also because of its interference with private property, which this court said could not be justified as an exercise of the police power of the state to conserve its natural resources.* This court placed its decision on *both* grounds. The state alleged and stressed the limited supply of natural gas, the dependence of the people of the state, both present and future, thereon for fuel, the lack of other fuel, and the dependence of the future growth and prosperity of the state thereon. (221 U. S. 245-8.) The

state's attorney general asserted that the statute's "ruling principle is conservation, not commerce; that the due process clause is the single issue;" that the statute was a proper regulation under the police power *to conserve the natural resources of the state for the use of the inhabitants of the state* (pp. 249-250).

We quote briefly from the opinion:

"* * * With full appreciation of the importance of the questions involved, we pass to their consideration.

"As to conservation, appellant says that 'the case narrows itself to the single question of *whether, in any event, a state has the right to conserve its natural resources;* and, *second, has it the right to preserve a common supply for the equal use of all those who may by law resort to it.*'

"The second question is not presented in the case. * * * The right of the state 'to preserve the common supply for the equal use of all' owners is not denied by appellees. We put the question out of consideration, therefore, except incidentally, and concede the right of the state to preserve the supply of gas, as we shall hereafter set forth.

"*The extent of power which the second question implies a state possesses challenges serious inquiry. The natural resources of a state may be other than natural gas;* for example, may be timber and coal and iron and other metals; but it is contended that the right of conservation extends to these, and *the broad statement of the first question is qualified in the argument by the properties of natural gas and the limitation of its supply. This, it is contended, gives a range to the police power of the state which otherwise it would not possess.* * * * *Indeed, analogies are adduced of limitations upon the use of property by virtue of the police power under conditions which invoke its exercise for the advancement of the general welfare.* We select for review from the cases brought forward, those nearest to our inquiry, which

are Ohio Oil Co. v. Indiana, 177 U. S. 190; Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61; Hudson County Water Co. v. McCarter, 209 U. S. 349."
(221 U. S. 245, 251-252. Italics ours.)

This court, after quoting various extracts from its opinion in *Ohio Oil Co. v. Indiana,* in harmony with our contentions above stated, and referring to the asserted extent of the police power under conditions which invoke its exercise to conserve natural resources privately owned "for the advancement of the general welfare," said:

"The case, therefore, is an authority against, not in support of, the contention of the appellant in the case at bar.

"The statute of Indiana was directed against waste of the gas, and was *sustained because it protected the use of all the surface owners against the waste of any.* The statute was one of *true conservation,* securing the rights of property, not impairing them. * * * *It was sustained because such was its purpose; and we said that the surface owners of the soil, owners of the gas as well, could not be deprived of the right to reduce it to possession without the taking of private property.* It surely cannot need argument to show that if they could not be deprived of the right to reduce the gas to possession, they could not be deprived of any right which attached to it when in possession.

"The Oklahoma statute far transcends the Indiana statute. It does what this court took pains to show that the Indiana statute did not do. It does not protect the rights of all surface owners against the abuses of any. It does not alone regulate the right of the reduction to possession of the gas, but, when the right is exercised, when the gas becomes property, takes from it the attributes of property,—the right to dispose of it; indeed, selects its market, to reserve it for future purchasers and use within the state, on the ground that the welfare of the state

> *will thereby be subserved.* The results of the contention repel its acceptance. Gas, when reduced to possession, is a commodity; it belongs to the owner of the land; and, when reduced to possession, is his individual property, subject to sale by him, and may be a subject of intrastate commerce and interstate commerce. * * * *In other words, the purpose of its conservation is in a sense commercial,—the business welfare of the state, as coal might be, or timber.* Both of those products may be limited in amount, and the same consideration of the public welfare which would confine gas to the use of the inhabitants of a state would confine them to the inhabitants of the state." (221 U. S. 245, 251-252, 254-255. Italics ours.)

After reviewing the other cases cited, including *Lindsley v. Natural Carbonic Gas Co., supra,* which this court said was sustained "upon the reasoning" of the *Ohio Oil Co.* case, this court concluded:

> "We have reviewed the cases at some length, as they demonstrate the unsoundness of the contention of appellant based upon the right to conserve (we use this word in the sense appellant uses it) the resources of the state, and that *the statute finds no justification in such purpose for its interference with private property* or its restraint upon interstate commerce." (221 U. S. 260. Italics ours.)

The quotation in appellees' brief (pp. 17-18) from *Bacon v. Walker,* 204 U. S. 311, 313-315, is in no way inconsistent with the reference of this court to that case in *West v. Kansas Natural Gas Co., supra.* In *Bacon v. Walker* this court merely held that where private rights in property are equal or overlap, legislation designed to regulate the same, and to accommodate their co-existence, so that no one or more of them might injuriously affect the rights of others, is proper. This is the principle or

basis of the legislative power for which we contend. As that case, however, related to the accommodation of sheep herders and cattle grazers on the *public domain,* the statute might have entirely prohibited both from using the same.

The case of *Walls v. Midland Carbon Co.,* 254 U. S. 300, from which appellees quote, is not inconsistent with the principle laid down by this court in the *Ohio Oil Co.* case or in *West v. Kansas Natural Gas Co.* It also is against, and does not support, appellee's claim that the state's legislative power extends also to conserving natural resources privately owned for the benefit of the people of the state as well as to regulating and protecting the private correlative rights of the surface owners so that no one or more may injuriously affect the rights of the others. The *Walls* case upheld a state statute of Wyoming regulating the use of natural gas, which declared that

> " 'The use, consumption or burning of natural gas taken or drawn from any natural gas well or wells, or borings from which natural gas is produced for the products where such natural gas is burned, consumed or otherwise wasted without the heat therein contained being fully and actually applied and utilized for other manufacturing purposes or domestic purposes is hereby declared to be a wasteful and extravagant use of natural gas and shall be unlawful when such gas well or source of supply is located within 10 miles of any incorporated town or industrial plant.' "—254 U. S. 300, 309.

Section 2 of the Act prohibited the owner or lessee of a well to sell or dispose of the gas except under the specified conditions for the purpose of manufacturing carbon or

other resulting products. This statute related only to natural gas wells. *It appeared from the record that complainant was taking an excessive and disproportionate amount of the natural gas from the field, so that the gas in the field was being depleted and would be entirely exhausted within a short time, so that the rights of other owners and producers in the field who were engaged in the business of supplying natural gas to various communities would be injuriously affected and wiped out within a year.* Complainant was securing only 1¾ pounds of carbon black and 2/10 of a gallon of high-gravity gasolene from each thousand cubic feet of natural gas, and hence the court said "there is great disproportion between the gas and the product" (p. 324). This court said:

> "* * * The determining consideration is the power of the state over, and its regulation of, a property in which others besides the companies may have rights, and in which the state has an interest *to adjust and preserve*, natural gas being one of the resources of the state. *And in this consideration it is more important to consider not for what a particular owner uses the gas, but the proportion of his use to that of others; or, it may be, the prevention of use by others.*"—254 U. S. 319.

It is to be noted that the interest of the state is in *adjusting and preserving the correlative private rights of the owners in the field,* and this is the whole extent of the power and of what this court held. Expressing the same idea, this court, referring to *Bacon v. Walker, supra,* said:

> "The case, and those it cites, are authority for the position that *a state may consider the relation of rights, and accommodate their coexistence,* and, *in the interest of the community, limit one that others may be enjoyed.*"

Referring, then, to *Ohio Oil Co. v. Indiana, supra,* the opinion proceeds:

> "* * * It was decided * * * the state may interpose its power to prevent a waste or disproportionate use of either oil or gas by a particular owner in order to conserve the equal right of other owners and [thereby] advance the public interest. * * * *It was hence decided that the power of the state 'can be manifested for the purpose of protecting all the collective owners, by securing a just distribution, to arise from the enjoyment by them of their privilege to reduce to possession, and to reach the like end by preventing waste.'* "—254 U. S. 317.

An examination of the context of the opinion will readily disclose that the statements in the isolated extracts from pages 323 and 324 of the opinion, quoted on page 20 of appellees' brief, were not intended to mean (as appellees seek to infer) that the natural gas in the field is the property "of the state," or that the people of the state have the right of "equal participation" therein. On the contrary, the context of the opinion and the foregoing extracts therefrom herein quoted disclose that it is the property of the surface owners who alone have the right of "equal participation" therein, and that the sole basis of the legislative power and interest of the state, is to adjust and preserve the private correlative rights of the surface owners in a common source of supply by preventing a disproportionate use or waste or other conduct by one or more of them which injuriously affects the private correlative rights of other surface owners in the common source of supply.

This being the extent of the state's legislative power, if the statute goes further than is required for this pur-

pose, and attempts through its legislative or judicial branch to deprive all the surface owners or one or more of them of the use and enjoyment of their property or to prohibit conduct by one or more owners or operators not injurious to the rights of other owners or operators in the same field,—it exceeds the limits of the state's power of regulation, and goes "too far," and it constitutes a "taking" of private property in violation of the due process clause of the Fourteenth Amendment (*West v. Kansas Natural Gas Co., supra: Penn. Coal Co. v. Mahon,* 260 U. S. 393, 413-416; *Buchanan v. Warley,* 245 U. S. 60; *Minnesota v. Barber,* 136 U. S. 313; *Hernanghaus v. So. Cal. Edison Co.,* 200 Cal. 81, 107, 112, 115-118—on certiorari, 274 U. S. 728, 275 U. S. 486-487; *Hathorn v. Natural Carbonic Gas Co.,* 194 N. Y. 326; *Ex parte Kelso,* 147 Cal. 609.)

Neither the oil nor the gas produced in Santa Fe Springs field has been dedicated to a public use. If any such gas had been furnished to a public utility, this would not make the producer a public utility (*Allen v. Railroad Com.,* 179 Cal. 68; *Marin County v. Town of Sausalito,* 168 Cal. 587; *Associated Pipe Line Co. v. Railroad Com.,* 176 Cal. 518; *Beasley v. Engstrom,* 31 Idaho 14, 16 Pac. 1145). But appellants have not supplied any such utility with gas. [R. 161.] Moreover, *the business of producing oil or gas is not affected with a public interest* (*Williams v. Standard Oil Co.,* 278 U. S. 235, 240; *Tyson & Bro. v. Banton,* 273 U. S. 418). In the *Tyson* case the court said:

> "A business is not affected with a public interest merely because it is large or because the public are warranted in having a feeling of concern in respect

> of its maintenance. Nor is the interest meant such as arises from the mere fact that the public derives benefit, accommodation, ease or enjoyment from the existence or operation of the business."—273 U. S. 430.

In the *Williams* case, *supra,* the court said that the fact "that gasoline is of wide-spread use; that enormous quantities of it are sold in the state of Tennessee; and that it has become necessary and indispensable in carrying on commercial and other activities within the state" did not make the business of dealing in it "affected with a public interest" (278 U. S. 240).

These cases also show that the legislative declaration of the public interest such as is found in sections 8b and 21a of the statute here involved is not sufficient and cannot authorize the invasion of private rights. (See, also, *McFarland v. American Sugar Ref. Co.,* 241 U. S. 79, 80; *Herminghaus v. So. Cal. Edison Co.,* 200 Cal. 81, 115; *San Bernardino v. Riverside,* 186 Cal. 7.) In the *Herminghaus* case a state statute declaring a public interest in the beneficial use of all waters in the state and attempting to define what would constitute such beneficial use and what would constitute a waste, was sought to be applied so as to deprive the riparian owners of the lifting force of the underflow of the stream in lifting water to the surface of their lands. The statutory purpose was to make the water alleged to be wasted by the owners (in that it could be more beneficially used by others) available for use and appropriation by the general public. The Edison Co. claimed as an appropriator under this statute. The court pointed out (p. 107) that this use by the riparian owner of the uplifting force of the underflow was actually

a beneficial use, which the riparian owner could not be deprived of under the police power of the state, nor without the exercise of the power of eminent domain, with compensation. The court said:

> "* * * *Neither a court nor the legislature has the right to say that because such water may be more beneficially used by others it may be freely taken by them.* Public policy is at best a vague and uncertain guide, and no consideration of policy can justify the taking of private property without compensation. *If the higher interests of the public should be thought to require that the water usually flowing in streams of this state should be subject to appropriation in ways that will deprive the riparian proprietor of its benefit, the change sought must be accomplished by the use of the power of eminent domain."*—200 Cal. 81, 112. (See, also, what the court said on p. 117.)

An analysis of the cases shows that the public interest in the privately owned natural resources of the state is limited to a proper regulation of the private correlative rights of owners in a common source of supply by preventing actual waste or other conduct by any one or more of them injuriously affecting the rights of other surface owners in the common source of supply.

Mr. Chief Justice Hughes is evidently of this view for he is quoted in the report of the Federal Oil Conservation Board of May 27, 1926, at page 12, as giving the following legal opinion to the American Petroleum Institute, not as an advocate but as a legal adviser:

> "It has already been pointed out to the board that the Legislatures of oil-producing states have enacted various laws of a regulatory sort intended to prevent waste. *It would not be safe, however, to infer that laws which were not appropriately designed to prevent improper methods in extracting the oil, or to*

protect the interest of proprietors drawing from a common reservoir so that the action of one should not work a deprivation of the rights of others, but were directed to the prevention or curtailment of production itself, would be sustained in the absence of compensation to the owner who was thus deprived of the use of this property. Still less can it be assumed that a state would have the power to compel an owner to subject his right to drill for oil on his property, *not to regulations to prevent waste or for the purpose of preventing injury to other owners having a similar right,* but, as has been suggested by some, to the will of the other owners as to whether or not drilling should take place; that is, to make the exercise of the owner's right, dependent upon the wishes of other individuals not vested with governmental authority."

While there are, in a few decisions (such as *Commonwealth v. Trent,* 117 Ky. 34) dicta or loose statements to the effect that the state has an interest in privately owned natural resources, not only to so regulate the rights of the private owners that the conduct of one or more of them will not impinge upon the rights of others, but also to preserve the same for the benefit of the general public and the people of the state, an analysis and examination of those cases shows that what the court actually held was that the public interest extended only to the regulation and protection of the private property interests of the different owners in a common source of supply by preventing waste and other conduct injuriously affecting the rights of other private owners. The lower court held that this was the basis of the legislative power [R. 339-340, 346.] The court, however, said that the quotations in its opinion "tend to indicate that the state may restrict or regulate the production of oil or gas on the theory of the public's interest in their natural resources. * * * But as indicat-

ing that there is grave doubt concerning this power we here make reference to the case of *West v. Kansas Natural Gas Co.*, 221 U. S. 229." [R. 346.] As stated by this court in *West v. Kansas Natural Gas Co., supra:*

> "* * * The natural resources of a state may be other than natural gas; for example, may be timber and coal and iron and other metals; but it is contended that the right of conservation extends to these, and the broad statement of the first question is qualified in the argument by the properties of natural gas and the limitation of its supply. This, it is contended, gives a range to the police power which otherwise it would not possess. * * *
>
> "We have reviewed the cases at some length, as they demonstrate the unsoundness of the contention of appellant based upon the right to conserve * * * the resources of the state, and that the statute finds no justification in such purpose for its interference with private property * * *."—221 U. S. 229, 252, 260.

If the character of private property as "natural resources" or the fact that there is some limit to the supply, or the mere legislative declaration that the public has an interest in its preservation, be sufficient to justify uncompensated deprivation of the use thereof for the benefit of the general public as consumers, then the same arguments would apply to coal, timber and various minerals held in private ownership. There is no limit to which the legislature might go, and all recognized principles of property rights would be thus destroyed. The same argument might extend to the natural products of the soil. But these considerations do not justify a taking or interference with the rights and uses of the private owners thereof for the benefit of the general public. (*Williams v. Standard Oil Co.*, 278 U. S. 235.)

"* * * We are in danger of forgetting that a strong public desire to improve the public condition is not enough to warrant achieving the desire by a shorter cut than the constitutional way of paying for the change."—*Pennsylvania Coal Co. v. Mahon*, 260 U. S. 416.

POINT E.

The Statute as Applied to Appellants Constitutes a Taking of Appellants' Property for a Public Use Without Compensation and Without Due Process of Law, in Violation of the Fourteenth Amendment.

Applying the principles set forth in the cases cited under *Point D* to the *admitted and undisputed facts of the case at bar*, there can be no doubt but that the statute as construed and applied to appellants constitutes a taking of appellants' property for a public use without compensation, and a taking without due process of law, in violation of the Fourteenth Amendment. It appears from these admitted facts that each of appellants' oil wells is operated with the utmost efficiency and at their optimum gas-oil ratio, which is amongst the lowest in the field, and is also "so operated that it does not injuriously affect the operations of others owning and/or operating wells in the field"; also that appellants are not taking an undue or unjust proportion of oil or gas from the field. It further appears that the sole purpose of the order made under the supposed authority of the statute, decreasing by over 50% the allowed gas production required by appellants in the efficient production of oil and gas as aforesaid, is *"to conserve such gas for the benefit of the general consuming public" for light, heat and fuel.*

The order of the Superior Court complained of itself shows on its face that this was the purpose of the decrease in the allowed gas production from the field. The Superior Court, after finding that there is an unreasonable waste of natural gas in the *field,* recites that the same might be reduced and conserved by an order "which will limit the waste of gas by restricting the production thereof to a quantity reasonably in excess of the present outlets for beneficial use above ground" [R. 296]. This the court proceeded to do by limiting the production of gas from the field as a whole to 285 million cubic feet per day, based solely on the "present outlets for beneficial use above ground" for light, heat and fuel. This was done without any regard for or consideration of the correlative rights of the owners and operators in the field to prevent waste or other conduct by one or more of them injuriously affecting the rights of others in the field, and instead of protecting such correlative rights, which would constitute "true conservation", as stated by this court in *West v. Kansas Natural Gas Co.*, 221 U. S. 229, 254, in derogation and invasion of the rights of appellants and other operators in the field, took away from them the use of natural gas required for the proper and efficient production of oil, admittedly solely "for the purpose of conserving such natural gas for the benefit of the general public" for light, heat and fuel [R. 23]. The majority rule prevails in California that oil and gas in place are minerals and realty and belong to the owner of the land as long as they are on it or in it or subject to his control. The same can be sold or reserved in place by the owner, and instruments of sale thereof in place are required to be executed with the formalities of a conveyance of real estate and

create a corporeal rather than an incorporeal interest and sever the mineral estate from the surface estate (*Isom v. Rex Crude Oil Co.*, 147 Cal. 659; *Graciosa Oil Co. v. Santa Barbara*, 155 Cal. 140; *Duvall v. White*, 46 Cal. App. 305; *Brookshire Oil Co. v. Casmalia etc. Co.*, 156 Cal. 211; *Chandler v. Hart*, 161 Cal. 405, 412-413, 418; *Barlow v. Security Trust & Savings Bank*, 197 Cal. 263, 267; *Payne v. Neuval*, 155 Cal. 46; *Boone v. Kingsbury*, 77 Cal. Dec. 94; *Mills & Willingham, "The Law of Oil and Gas"*, 1926 Ed., pp. 20, 22; 1 *Thornton's Law of Oil and Gas*, par. 25a, p. 95; *Texas Co. v. Daugherty*, 107 Tex. 234, 176 S. W. 717, 719-721; *Bodcaw Lumber Co. v. Goode* (Ark.), 254 S. W. 345, 29 A. L. R. 578; *Osborn v. Arkansas Oil & Gas Co.*, 103 Ark. 175 Annotated Note, 29 A. L. R. 586-589).

Since the drainage area of an oil well in Santa Fe Springs field is not more than 50 to 100 feet around the well [R. 6, 152, 277] and generally in California the drainage area does not exceed more than 4 or 5 acres (*Chandler v. Hart*, 161 Cal. 405, 418), it makes very little difference whether the title of the surface owner in oil and gas *in situ* beneath his land is absolute or qualified, or is owned by him and his surrounding neighbors jointly, or whether all of the oil and gas deposits in the field are collectively owned by all of the surface owners,—the practical result is the same, for in no event can all or any of the private owners thereof be deprived thereof for the purpose of conserving the same for the benefit of the general public. It was said by this court in the *Ohio Oil Co.* case and the *West* case that "the surface owners of the soil, owners of

the gas as well, could not be deprived of the right to reduce it to possession without the taking of private property" (221 U. S. 229, 254). The deprivation need not be absolute; any deprivation of such right is *pro tanto* also a taking. It is an economic and legal principle that the highest attribute of property is the right of the owner to use and enjoy it according to its peculiar nature and adaptiveness. As stated by this court in *Buchanan v. Warley*, 245 U. S. 60, 74:

> "* * * Property is more than the mere thing which a person owns. It is elementary that it includes the right to acquire, use, and dispose of it. The Constitution protects these essential attributes of property."

The use of private property is a right as much entitled to protection as the property itself, and an unauthorized restriction of the use thereof is as much a taking for constitutional purposes as if the property itself were taken. In *Penn. Coal Co. v. Mahon*, 260 U. S. 393, 414, Mr. Justice Holmes said:

> "* * * 'For practical purposes, the right to coal consists in the right to mine it.' * * * What makes the right to mine coal valuable is that it can be exercised with profit. To make it commercially impracticable to mine certain coal has very nearly the same effect for constitutional purposes as appropriating or destroying it."

That under the due process clause the protection of the use of property is the all-important conception also appears from the following cases: *Pumpelly v. Green Bay Company*, 80 U. S. 166; *Cleveland, C. C. & St. L. R. Co. v. Backus*, 154 U. S. 439; *Branson v. Bush*, 251 U. S. 182; *Terrace v. Thompson*, 263 U. S. 197.

Depriving appellants herein of sufficient gas to efficiently produce oil at a proper gas-oil ratio without injuriously affecting the rights of other surface owners or operators in the field, results in appellants' daily oil production being diminished almost 10,000 barrels a day, and in their daily receipts being decreased by about $12,500.00, not to mention $2500 a day loss of casinghead gasoline, and also results in the shutting in, killing and permanently injuring many producing oil wells, costing approximately $150,000.00 each to drill. The gas of which appellants are deprived and which they are compelled to keep in the ground solely for the purpose of preserving the same for the future use and benefit of the general consuming public above ground for light, heat and fuel, is employed in the highly useful and beneficial purpose of efficiently producing oil without injuriously affecting the rights of other surface owners or operators in the field. Under these admitted facts, and under the decisions of this court hereinabove cited, it is respectfully submitted that the statute as applied to appellants constitutes a taking of appellants' property for a public use without compensation and without due process of law, in violation of the Fourteenth Amendment of the United States Constitution.

While the opinion of the lower court held that the basis of the legislative power was the regulation and protection of the private correlative rights of the surface owners and operators in the field as against the waste and other conduct of one or more of them injuriously affecting others [R. 346], and that there is "grave doubt" as to the power of the state to legislate to conserve privately owned

natural resources for the future use and benefit of the general public [R. 346], citing *West v. Kansas Natural Gas Co.*, 221 U. S 29, and stated that the measure or standard of unreasonable waste of natural gas intended to be prohibited is the production of gas in producing oil in excess of a normal proportion of gas and oil for the field when such gas is not conveniently necessary for the generation of light, heat, power or other industrial purposes [R. 350-351, 363],—when the court proceeded to reply to these principles it overlooked or ignored the admitted facts above stated and upheld the order of the Superior Court. This construction of the statute in its application to appellants is, for all purposes of the jurisdiction of this court, conclusive evidence that the state of California intends by this legislation to authorize the taking of privately owned natural resources from surface owners and operators in the field solely for the purpose of conserving the same for the future use and benefit of the general public for light, heat and fuel, without any compensation therefor to such private owners. This is clear under the admitted facts shown in the record, the high points of which are referred to again at the beginning of the argument under this *Point E.*

> "* * * when a party appeals to this court for the protection of rights secured to him by the Federal Constitution, the decision is not to depend upon the form of the state law, nor even upon its declared purpose, but rather upon its operation and effect as applied and enforced by the state; and upon these matters this court cannot, in the proper performance of its duty, yield its judgment to that of the state court. St. Louis South Western R. Co. v. Arkansas, 235 U. S. 350, 362."—*Coppage v. Kansas,* 236 U. S. 1, 15.

The inference in the opinion of the lower court that appellants are using greater quantities of gas than the gas-oil ratio standard set forth in the opinion, is wholly without factual foundation and contrary to the record, as is also the inference that the Superior Court so found. As to the first, we need do no more than refer to the admitted facts that appellants are operating each of their wells at their optimum gas-oil ratios, which are amongst the lowest in the field, and that "each well is so operated that it does not injuriously affect the operations of others owning and/or operating wells in said field, and that appellants are not taking an undue proportion of gas or oil from the field" [R. 361-3].

The alleged finding referred to by the District Court of Appeal as being a determination by the lower court that petitioners are unreasonably wasting natural gas, is contained in the following recital from the preliminary injunction:

> "There appears to be an unreasonable waste of natural gas *in the Santa Fe oil field.*"

And—

> "That the evidence available * * * shows that the unreasonable waste of natural gas *in said field* may be substantially reduced and that the equities of all parties may be fairly conserved by a preliminary injunction which will limit the waste of gas by restricting the production thereof to a quantity reasonably in excess of the present outlets for beneficial use above ground," etc.

Referring to this extract, the lower court said:

> "It does not appear from the facts presented to us that, in so far as the particular case before us is concerned, the court exceeded its jurisdiction in finding as we have already quoted."

It will be noticed, however, that the quoted finding is merely a finding of the existence of an unreasonable waste of natural gas *in the field*, and that there is no finding that any of the wells of petitioners are operating at an unreasonable or improper gas-oil ratio, either for the particular well or for the field. Under the admitted facts above referred to which were established by uncontradicted testimony [R. 7-8, 13], there is no factual basis for such a finding if one had been made. The Superior Court (if the statute is not wholly void on its face under Points G and H) utilized the full limits of its authority, as stated in the opinion of the lower court [R. 363], when it inserted paragraphs 1 and 2 of the preliminary injunction which enjoined each operator of the field

> "1. From blowing, releasing or permitting any natural gas to escape into the air from any well or wells in the Santa Fe Springs oil field before the removal of the gasoline from such natural gas.
>
> "2. From operating any well producing natural gas in the Santa Fe Springs oil field except while exercising a high degree of care in the selection and adjustment of appliances and in the use thereof for the purpose of keeping each producing well in its *'optimum gas-oil ratio'—the term 'optimum gas-oil ratio' being defined as the smallest number of cubic feet of gas which can be produced with each barrel of oil from the same well at the same time.*"

But the injunction does not stop with its requirement of a proper gas-oil ratio. It goes further, and inserts paragraph 3, which limits the allowed gas production of the field according to some unknown standard, not prescribed by the Legislature, but *enacted* by the court, based wholly upon the present market demands for gas above ground for light and heat. The order itself discloses that the

limitations of paragraph 3 thereof were not based upon any consideration of proper gas-oil ratios for the various wells in the production of oil (the standard prescribed by the statute according to the statements of the lower court —R. 351-2, 363), but were based solely upon an arbitrary, horizontal and blanket cut in the gas production of the field "to a quantity reasonably in excess of the *present outlets for beneficial uses*" above ground for light, heat and fuel, which the court arbitrarily fixed at 285,000,000 cubic feet of gas per day.

The admitted purpose of the decrease in the allowed production was to conserve such natural gas for the benefit of the general public for light, heat and fuel [R. 23], which also appears from the face of said provisions of the order itself. This curtailment and decrease of allowed gas production, the record therefore clearly shows, was not based upon any consideration of and had no relation to, proper gas-oil ratios or regulating the correlative rights of the owners or operators in the field by preventing waste or other conduct of one or more of them injuriously affecting the rights of other owners or operators in the field. On the contrary, it invaded and impaired such rights by taking away from appellants and other operators in the field the use of natural gas required for the proper and efficient production of oil, admittedly solely "for the purpose of conserving such natural gas for the benefit of the general public" for light, heat and fuel. This, under the cases cited, constitutes a taking of private property under the due process clause of the Fourteenth Amendment and requires the exercise of the power of eminent domain, with compensation.

POINT F.

Under the Admitted Facts, the Extent of the Invasion of Appellants' Property Rights Is so Great, so Arbitrary, so Oppressive and Unreasonable, That It Goes Too Far Under the Police Power of the State.

The natural gas of which appellants are sought to be deprived by the statute as construed and applied to appellants cannot constitutionally be said to be wasted, much less unreasonably wasted. The admitted facts show: It is being utilized efficiently in the production of oil at the optimum gas-oil ratio, and appellants' operations admittedly do not injuriously affect the rights of others. Their gas production is employed in the useful and nowise harmful production of oil. Such use does not result in an undue or disproportionate taking of oil or gas by appellants. [R. 6, 155.] The gas so produced by appellants is utilized a second time in the highly useful and beneficial and nowise harmful manufacture of casinghead gasoline. So much of the remaining residual dry gas as can be used by appellants for field and other purposes is used, and so much as can be sold is sold. The remainder admittedly can not be sold or given away, and has no value. It can not be stored except at exorbitant and prohibitive cost. Having been already utilized over and over again, and having no further use or value, it is permitted to escape into the air. Property cannot be taken by mere legislative fiat declaring that to be unreasonable *waste* which is not such in truth. (*Herminghaus v. Edison Co.*, 200 Cal. 81; *Coppage v. Kansas*, 236 U. S. 1, 16.) Having been reduced to possession in pipes of appellants; and being later in

the possession of appellants in its casinghead gasoline plant, it is, at the time it is released to the air, the absolute private property of appellants, the same as any other article of commerce (*West v. Kansas Natural Gas Co.*, 221 U. S. 229, 255). If it could be sold at the prevailing market price, it would bring only $1,300.00 a day. Even this saving would be less than 10% of the wealth produced by it, viz.: $12,500.00 a day in oil and $3,000.00 in casinghead gasoline. To say that appellants can be deprived of the right to the use thereof for such highly beneficial purposes, under conditions not injuriously affecting the rights of others, solely for the purpose of conserving the same in the ground until it may be used by the general consuming public above ground for light, heat and fuel is certainly to "let the tail wag the dog."

In this connection, we call attention to the following comment of this court in answer to the argument in the *Walls* case addressed to the impossibility of complying with the Wyoming statute which required the heat content of gas being fully and actually utilized:

> "As we have seen, many affidavits were addressed to the impossibility of complying with the statute; that is, of utilizing the heat of natural gas to the extent of the words of the statute. We say to the extent of the words of the statute, because we think *the statute must be construed with reference to the facts of nature and their possibilities,* and that all that was intended by the words employed was to require *a practical and possible use of the heat,* as in

other fuels, *and by the existing instrumentalities,* and if this should be done, it was a legal use of the gas,—was an application and utilization of the heat contained in it."—254 U. S. 300, 325.

The necessary inference from this language is that if the statute had required more than "a practical and possible use * * * by the existing instrumentalities" it would have been going too far under the police power.

Foster Fountain Packing Co. v. Haydel, 278 U. S. 1, is another case where an attempt was made to let the tail wag the dog. There a statute of Louisiana made it unlawful to export from the state any shrimp from which the heads and hulls have not been removed, and, in order that all its inhabitants "may enjoy the state's natural food product", it was made unlawful to export from the state any raw shells or hulls and heads "as they are required to be manufactured into fertilizer or used for an element in chicken feed". The statute provided that title to the shrimp should remain in the state but that when "they have been conserved for the purpose herein stated" the right of property should pass to the lawful taker. *The value of the bran and fertilizer made from the hulls and heads and shells was worth less than 1% of the value of the shrimp, and not more than half the hulls and heads removed were used for any purpose.* As stated by this court, *"they have no market value, cannot be sold or given away, and often constituted a nuisance"* (278 U. S. 8-9). The court held that the conservation of the hulls and heads

was a feigned and not the real purpose, and that the statute was an unwarranted invasion of the business of appellants.

The facts of the case at bar are much different from the record presented in the *Ohio Oil Co.* case. The oil company's operations were injuriously affecting the operations of all other surface owners in the field. In the case at bar the exact contrary is admitted. In that case a pure natural gas reservoir existed under nine or more counties, in which the gas moved freely and the gas pressure throughout the field was always the same, and all operators were injuriously affected by a disproportionate use or waste of the gas. All of the operators in the field were in the business of producing gas alone from this reservoir. After a large industrial area had been built over this reservoir of gas, oil in a lower stratum was discovered by the Ohio Oil Company, and in the oil production it allowed large quantities of gas to escape into the air which resulted in a disproportionate taking and injuriously affected all of the other operators in the field by materially decreasing the gas pressure throughout the field, so that salt water would visit the formation and greatly injure or completely destroy the common supply. In the Santa Fe Springs *oil* field *all* of the operators are engaged in oil production. There are no free gas zones affected. The production of gas is the incidental by-product of *all* of the operators in the field. [R. 9.] In Indiana the demand for natural gas greatly exceeded the supply, whereas in California the supply greatly exceeds the demand (*People v. Associated Oil Company,* decided by the Supreme Court of California, p. 36, Supplement to Appellees' Brief). The oil pro-

ducing formation is such that a well penetrating it does not affect or decrease the pressure throughout the field but only in the immediate vicinity of the well, not exceeding a radius of 50 to 100 feet [R. 6, 102, 124, 277]. This, together with the admitted facts that appellants are operating each of their wells at a proper gas-oil ratio, amongst the lowest in the field, and so as not to injuriously affect others in the field, and are not taking an undue proportion of gas or oil, makes the admitted facts of this case just the opposite of those in the *Ohio Oil Co.* case, which requires just the opposite conclusion. The same factual differences exist between the case at bar and the *Walls* case and the *Lindsley* case.

The undue severity of the statute as construed and applied to appellants is patent. There was no factual basis therefor under the admitted power of the state to regulate and protect the correlative private rights of owners and operators in the same field against waste or other conduct injuriously affecting other operators in the field. If it could be assumed that the public interest justified any curtailment or limitation upon the production of gas by appellants and others for the general welfare of the public as consumers (which we cannot concede), under the admitted facts of this case it appears that the extent of the invasion of the property rights of appellants is so great, so arbitrary and so oppressive and unreasonable, that it goes too far under the police power and requires the exercise of the power of eminent domain, with proper compensation (*Pennsylvania Coal Co. v. Mahon, supra*). The effect of the statute as construed and applied to appellants already appears from the statement of facts at the beginning of this brief. Appellants' oil production is cut in

two, resulting in a daily loss of $12,500.00 in oil production and $3,000.00 in casinghead gasoline, to say nothing of the permanent and irreparable injury caused by the shutting down and killing of many oil wells costing on an average of $150,000.00 each. That this is too great a loss and invasion under the police power without compensation, appears from the mere statement of the facts. This is particularly true where the purpose to be accomplished has no proper relation to the legislative power of regulating and protecting privately owned natural resources, but is admittedly for a purpose which is diametrically opposed thereto. That the extent of the invasion of appellants' property rights is so great, so arbitrary, so oppressive and so unreasonable, under the admitted facts of this case that it goes too far under the police power of the state, is settled by the following decisions: *Pennsylvania Coal Co. v. Mahon,* 260 U. S. 393; *Dobbins v. Los Angeles,* 195 U. S. 223; *Lawton v. Steele,* 152 U. S. 133-137; *Buchanan v. Warley,* 245 U. S. 60; *Coppage v. Kansas,* 236 U. S. 1; *Herminghaus v. Southern California Edison Co.,* 200 Cal. 81; *Ex parte Kelso,* 147 Cal. 609. Certainly this presents a substantial federal question of a character requiring full consideration on its merits and a denial of the motions to dismiss or affirm.

For an interesting and illuminating discussion of the scope and extent of the legislative power of the state and an analysis of various statutes and decisions relating to oil and gas, showing the serious and substantial character of the federal questions presented thereby, see article in Vol. 52, Reports of American Bar Association, 1927, p. 577, entitled "Legislative Control of the Business of Producing Oil and Gas," by James A. Veasey.

POINT G.

The Statute Involved Is Void for Uncertainty and Lack of a Sufficiently Definite Standard of Conduct Under the Due Process Clause of the Fourteenth Amendment.

The rule that the construction of a state statute by the highest court of the state is accepted by this court, does not apply when the state construction is conflicting or unsettled. In such a case this court will construe the statute for itself. (*Concordia Ins. Co. v. Bryan,* Case No. 278, Oct. Term 1930, 75 L. Ed. 387, 391; *Edward Hines Yellow Pine Trustees v. Martin,* 268 U. S. 458; *Portneuf-Marsh Valley Canal Co. v. Brown,* 274 U. S. 630; *Burgess v. Seligman,* 107 U. S. 20; *Railroad Com. v. Los Angeles R. Corp.,* 280 U. S. 145.)

The Construction of the Statute Involved by the Highest Courts of the State Is so Conflicting, Uncertain and Unsettled That This Court Should Adopt Its Own View as to the Standard or Measure of Unreasonable Waste of Natural Gas Prohibited, If Ascertainable From the Statute.

An examination and analysis of the opinion of the lower court and of the later opinions of the Supreme Court of California in *People v. Associated Oil Company* disclose that they are uncertain and hopelessly in conflict in their statements as to the construction of the state statute involved, and disclose also in that what the lower court really said is the measure of unreasonable waste of natural gas prohibited by the statute is wholly at variance with the effect of its decision in the application of the statute to appellants under the admitted facts contained in the record.

The lower court, after pointing out that the basis of legislative power in such matters is the regulation of the private correlative rights of the surface owners and operators in the underlying deposits of oil and gas as against waste or other conduct by one or more of them injuriously affecting the operations of other owners or operators in the field, and that there is "grave doubt" concerning the legislative power on the theory of "the public's interest in their natural resources" [R. 346], says that

> "It is also apparent from a reading of the entire act that unreasonable waste of gas is considered to be the production of an undue proportion of gas to the amount of oil, in the particular field involved, by one surface owner as against others, in those instances where the gas is not conveniently necessary for the 'generation of light, heat, power or other industrial purpose.' That this is the intent and purpose of the law is made manifest from the following quotation from section 8d: 'If it shall appear that gas is being produced from any oil well or wells in quantities exceeding *a reasonable proportion to the amount of oil produced from the same well or wells,* even though it is shown that such excess gas is being used in the generation of light, heat, power or other industrial purpose and that there is sufficient other gas available for such uses from other wells in the same or other fields in which the gas produced is not in excess of the amount which bears *a reasonable proportion to the amount of oil produced* from such other wells and that there are adequate gas-pipe-line connections between such other wells and the place of utilization of such gas the state oil and gas supervisor shall hold that such excess production of gas is unreasonable waste thereof if such holding will not cause an unreasonable waste of gas in any other field.' (Italics ours.) The legislation was evidently adopted upon the theory that in every oil field there is what we may term (at least for illustrative purposes) a normal proportion of gas to oil; that when an unreason-

> able disproportion of gas to oil exists in a given well there is a corresponding loss of recoverable oil by other owners who would otherwise employ the lifting power of the excessive gas to good purpose; and that this disproportionate production of gas should not be permitted unless the gas as a separate thing be conveniently necessary for domestic or industrial purposes. We have not overlooked the fact that the act makes the blowing or release of gas into the air *prima facie* proof of unreasonable waste. * * *
>
> "* * * we are convinced that a proper construction of the enactment confines the authority within the limits of enjoining the production of gas when in excess of the reasonable proportion to the oil for the particular field involved, when not conveniently necessary for other than lifting purposes." [R. 350-352, 363.]

The standard thus adopted as the measure of unreasonable waste of natural gas is the normal or reasonable gas-oil ratio *for the field* except where more gas is produced because conveniently necessary to supply consumers for light, heat, fuel or other industrial purpose [R. 361-2]. The lower court further said that the admitted fact that appellants' wells are not producing an undue proportion of gas when the production is measured by oil from the specific well is *immaterial* as conceivably such a well might injuriously affect the rights of other owners if it were what is known as a "gasser" [R. 361-2]. The lower court, however (in what it actually did), failed to apply or follow the standard or measure of unreasonable waste, or the principle or basis of the legislative power, which it expressed in its opinion. It overlooked or entirely ignored: the admitted fact, established by the uncontradicted evidence, that the gas produced from appellants' wells is not in excess of the amount which bears a reasonable propor-

tion to the amount of oil produced from such wells [R. 8, 135]; that the gas-oil ratios of appellants' wells are amongst the lowest in the field [R. 13]; that said wells are operated so as not to injuriously affect the rights of other owners and operators in the field [R. 13]; that none of appellants is producing from its wells an undue or unreasonable amount of oil or gas or more than its just share or proportion [R. 6, 139, 155]. Strange to say, the court approved the order of the Superior Court limiting the gas production from the field, which shows on its face that said order was not based upon any consideration of proper gas-oil ratios of any one or more wells or of the field but solely upon the available gas outlets of gas from the field as a whole for use above ground for light, heat and fuel [R. 296]. The court also ignored the admitted allegation that the sole purpose in the decrease in the allowed gas production of the field was to reserve such gas for the future use and benefit of the general public [R. 23].

About a week after the opinion of the lower court was rendered the Supreme Court of California, in *People v. Associated Oil Company* (opinion not yet officially reported but printed as Appendix "C" to Supplement to Appellees' Brief) adopted a construction of the statute widely at variance with the construction of the statute as stated in the opinion of the lower court herein [Appendix "B", p. 19, Supplement to Appellees' Brief]. The Supreme Court held that the legislative power in the premises was to regulate not only the private correlative rights of the surface owners as against waste and other conduct of one or more of them injuriously affecting others of them, but also to conserve privately owned natural resources in the

interest of the public as consumers [pp. 30-32, Supplement to Appellees' Brief]. That court adopted the "optimum" or "best mean" gas-oil ratio of *each well* as the standard or measure of unreasonable waste intended to be prohibited, which the District Court of Appeal said was immaterial. The California Supreme Court said:

> "It fairly appears on this application that, depending on its location in the oil reservoir, the extent of the oil 'sand,' the degree of pressure within the formation, the amount of oil in the 'sand,' the amount of gas in solution with the oil, the porosity of the 'sand' and other considerations, *each oil and gas well has a best mean gas and oil ratio in the utilization of the lifting power of the gas and the production of the greatest quantity of oil in proportion to the amount of gas so utilized,* and which may be computed as to each individual well to a reasonable degree of certainty and be regulated accordingly. *Gas, therefore, which has been allowed to come to the surface without its lifting power having been utilized to produce the greatest quantity of oil in proportion, may be said to amount to an unreasonable waste of natural gas.*
>
> "*That the legislature intended to prohibit such a waste of natural gas, and so defined the term 'unreasonable waste,' is quite apparent from a consideration of the provisions of a portion of section 8d of the act.* Section 8d relates to the procedure upon complaint of undue waste filed with the director of natural resources, and the portion thereof immediately quoted is offered to us by petitioners as the only statement in the act of any standard of 'unreasonable waste,' viz.: 'If it shall appear *that gas is being produced from any oil well or wells in quantities exceeding a reasonable proportion to the amount of oil produced from the same well or wells,* even though it is shown that such excess gas is being used in the generation of light, heat, power or other industrial purpose, and that there is sufficient other gas available for such uses from other wells in the same or other fields in

which the gas produced is not in excess of the amount which bears a reasonable proportion to the amount of oil produced from such other wells, and that there are adequate gas-pipe-line connections between such other wells and the place of utilization of such gas, the state oil and gas supervisor shall hold that such excess production of gas is unreasonable waste of gas if such holding will not cause an unreasonable waste of natural gas in any other field.' *It would seem, therefore, that the legislature has plainly adopted the standard so expressed, viz.: that gas may not be produced, under existing conditions where the production thereof so greatly exceeds the market demand therefor, in quantities exceeding a reasonable proportion to the amount of oil produced, as the standard to be applied and beyond which the production is prohibited as being an unreasonable waste of natural gas.*

"The standard so adopted by the legislature is, we think, not objectionable as being too vague or uncertain of application. * * *

"* * * The statute held valid in the case of *Ohio Oil Company v. Indiana, supra,* permitted no waste of gas whatsoever for a longer period than two days after gas or oil had been struck. The margin between no waste at all and a reasonable waste *in recognition of the propulsive function of the gas is largely one of fact.* In the ascertainment of the fact the legislature has vested in the superior court full power and duty in the premises."—Opinion of Supreme Court of California, decided Dec. 3, 1930, not officially reported, *People v. Associated Oil Co., et al.,* on application for Writ of Supersedeas [pp. 35-37, 38, 41-42, Supplement to Brief of Appellees].

These definite statements by the Supreme Court adopting the optimum or best mean gas-oil ratio *of each well* as the standard of unreasonable waste prohibited by the statute are, however, considerably clouded and made uncertain by later statements in the said opinion of that

court in discussing other questions. For instance, in answering the contention that the real purpose of the statute is to curtail the production of oil so as to regulate and stabilize the market price thereof, the court said:

> "* * * We cannot agree with this contention. *Obviously the enactment is an effort on the part of the legislature to conserve for present and future needs great natural resources in which the people of the state are interested.* It may be that the enforcement of the statute throughout the gas and oil producing sections of the state may have an effect upon the market price of oil. For this reason the subject matter of the act is a delicate one for legislative treatment and judicial cognizance. But the fact that the field of economic law to some extent may thus be invaded may not justify the avoidance of the statute. *As we view the terms of the act the primary function of gas in the production of oil is recognized, and its complete utilization in that respect, without unnecessary waste, is attempted to be safeguarded. The additional function of the gas in providing light and heat for manufacturing and domestic purposes is also recognized, and the effort is made to compel the fullest utilization as to both functions. The act, without doubt, was a response to a growing recognition that the continuing and increasing waste of the propulsive energy of gas underground and of its full energy above ground was unreasonable and should be inquired into and regulated, to the end that the public convenience and general prosperity of the commonwealth be promoted.* Such legislation should not be stricken down because there may be an incidental and unavoidable interference in the economic field."—Opinion of Supreme Court of California, *People v. Associated Oil Co., et al.* [pp. 39-40, Supplement to Brief of Appellees].

These statements are inconsistent with the provisions preceding, defining the optimum or best mean gas-oil ratio of each well as the standard or measure of unreason-

able waste, if intended to require also complete and fullest utilization of the gas above ground for light, heat, fuel and other industrial purpose after the gas has been properly utilized in producing oil. However, it would seem that if this additional requirement had been intended by the court, it would have been included in its previous discussion defining what constitutes unreasonable waste of natural gas under the statute. The court stated that the statute contemplated "a reasonable waste in recognition of the propulsive function of the gas" (p. 42), and on page 36 said:

> "* * * It would seem, therefore, that the legislature has plainly adopted the standard so expressed, viz.: that gas may not be produced, *under existing conditions where the production thereof so greatly exceeds the market demand therefor,* in quantities exceeding a reasonable proportion to the amount of oil produced, as the standard to be applied and beyond which the production is prohibited as being an unreasonable waste of natural gas."

The plain inference is that "The California statute recognizes the use of gas as a propelling agency in the production of oil and contemplates that within reasonable limits gas may be used for that purpose and thereafter be allowed to escape" (*Ambassador Petroleum Company v. Superior Court*, 79 Cal. Dec. 67.) Whether, in addition to the requirement of a proper gas-oil ratio, the statute places any limitation in the interest of the general public upon the amount of gas properly used in the production of oil which may thereafter escape into the air, is thus left wholly uncertain and in doubt, as is also the extent of any such limitation.

The factors to be used and the relative weight of each in determining how much gas so utilized may be blown to the air, and how much thereof is required to be reserved in the ground in the interest of the general public, are left for each operator to determine at his peril according to a standard subsequently erected by a court or jury which "'must be as variable and uncertain as the views of different juries [and judges] may suggest and as to which nothing can be known until after the commission of the crime'." (*In re Peppers,* 189 Cal. 687, quoting from *Louisville etc. Railroad Co. v. Commonwealth,* 99 Ky. 132, 35 S. W. 129.) "'* * * The manifest danger in the administration of justice according to so shifting, vague and indeterminate a standard would seem to be a strong reason against adopting it.'" (*Cline v. Frink Dairy Co.,* 274 U. S. 445, 462.)

As stated by Mr. Chief Justice White in *United States v. Cohen Grocery Co.,* 255 U. S. 81, 89:

> "* * * to attempt to enforce * * * [such a provision] would be the exact equivalent of an effort to carry out a statute which in terms merely penalized and punished all *acts detrimental to the public interest* when unjust and unreasonable in the estimation of the court and jury."

There is another important variance and difference between the opinion of the lower court and the said opinion of the Supreme Court of California. The statement of the standard in the opinion of the lower court includes permission for an operator to produce more gas than is reasonably necessary to utilize in the operation of a well at a normal gas-oil ratio for the field in the efficient production of oil if such gas is "conveniently necessary for the gen-

eration of light, heat, fuel or other industrial purpose" [R. 350, 363]. Such a factor is wholly absent in the said opinion of the Supreme Court of California. The introduction of such a factor makes it possible for one or more operators to operate at a gas-oil ratio injuriously affecting other owners and operators in the field in order to supply such gas for uses above ground to the general public for light, heat and fuel.

To add to the confusion and uncertainty, counsel for appellees hereunder, on behalf of the state, declared in their Reply to the Petition for Rehearing in the state court (p. 27):

> "By the opinion in each court the act is construed to prevent unreasonable waste in three particulars:
>
> "1. The operation of a well so as to produce more gas than is required under the optimum gas-oil ratio of the well.
>
> "2. The operation of a well so as to produce at a higher gas-oil ratio than is reasonable in the field even though a well operating at its optimum gas-oil ratio must be killed.
>
> "3. The operation of a well so as to produce gas in such quantity as to blow to the air an unreasonable proportion of the quantity of gas produced after the gasoline is removed therefrom where there is no market demand for the gas."

Finally, to add further to the confusion and uncertainty, the Supreme Court of California, in its opinion on the merits of the appeal in *People v. Associated Oil Co.*, decided March 26, 1931 [not yet officially reported but presented

as Appendix "C," p. 45 of Supplement to Brief of Appellees], declared (pp. 48, 50) that the state had the power of

> "* * * regulation under the police power, not only to the end of protecting the correlative rights of the owners and operators in this field, but also the *rights of the public which has a direct interest in safeguarding this important natural resource.* * * *
>
> "We reiterate that the legislation in question has lawfully vested in the Superior Court the power to determine what wastage of gas in the production of oil is reasonable or unreasonable. Whether such wastage be reasonable or unreasonable is a question of fact and should be determined *in view of the necessity of one landowner to make productive use of his parcel, in view of the equal right of the adjoining owners not to be deprived of correlative production from their parcels, and in view of the right of the public to prevent the waste of that which cannot be replaced.*"

The court does not expressly refer to the gas-oil ratio standard in its previous opinion or to whether the gas-oil ratio in the particular well involved there complies therewith, and devotes most of its opinion to the question of whether the order of the Superior Court is discriminatory as to such well. While it contains no language overruling or repudiating its statement that the best-mean or optimum gas-oil ratio *of each well* is *"the"* measure or standard of unreasonable *waste* intended to be prohibited by the statute, the language in the last paragraph of the above quotation therefrom, together with the discussion of the order of the lower court, tends to indicate that there are other factors, the exact nature and relative weight of which are not set forth.

The Total Invalidity of Section 8d of the Statute, Upon Which the State Construction is Based, Renders the State Construction Without Merit and Also Requires This Court to Adopt Its Own View of the Statute.

That both the District Court of Appeal and the Supreme Court of California based their construction of the statute upon section 8d, is indicated by the foregoing extracts from their opinions. Section 8d on its face is repugnant to the due process and equal protection clauses of the Fourteenth Amendment. It provides that at the conclusion of the hearing and proceedings before the supervisor of oil and gas therein provided for, he shall make an order, and expressly authorizes the supervisor, even though an unreasonable waste of natural gas is found to exist, to order the discontinuance thereof only "to the extent stated in said order." This gives absolute, arbitrary, unguided and uncontrolled discretion and power to the supervisor to punish his enemies and favor his friends, which is condemned under the federal constitution by what this court said in a like case, in *Yick Wo v. Hopkins*, 118 U. S. 356. The word "arbitrary" is defined by Webster as "not governed by any fixed rule of conduct." We quote the following famous passage from *Yick Wo v. Hopkins, supra*, where this court said:

> "* * * But the fundamental rights to life, liberty, and the pursuit of happiness, considered as individual possessions, are secured by those maxims of constitutional law which are the monuments showing the victorious progress of the race in securing to men the blessings of civilization under the reign of just and equal laws, so that, in the famous language of the Massachusetts Bill of Rights, the government of the Commonwealth 'may be a government of laws

> and not of men.' For, the very idea that one man may be compelled to hold his life, or the means of living, or any material right essential to the enjoyment of life, at the mere will of another, seems to be intolerable in any country where freedom prevails, as being the essence of slavery itself." (118 U. S. 356, 370.)

Such power was condemned under the federal constitution as a violation of both the equal protection and the due process clauses of the Fourteenth Amendment. Since this invalid provision of section 8d refers to the order to be made at the conclusion of the hearing therein provided for, with which alone the section deals, the entire action is invalid. It cannot be supposed that the Legislature would have provided for proceedings and a hearing leading up to the order therein provided for if the provisions for the order itself were known to be invalid. This is true, even though the statute provides that the invalidity of any provision shall not affect the remaining provisions. (*Williams v. Standard Oil Co.*, 278 U. S. 235, 242.)

So, even if the state construction of the statute were not conflicting, uncertain and in doubt, and the matter of the construction of the statute be regarded as a non-federal question, the federal question of the validity of section 8d is inseparably bound up with and interwoven with the construction of the statute sought to be invoked against appellants and for this additional reason this court has jurisdiction, therefore, to inquire into the matter. Furthermore, even if the state decisions construing the statute were not conflicting and wholly uncertain as to what is prohibited by the unreasonable waste of natural gas, and even if, under the circumstances, the construction of the statute could be regarded as a non-

federal question, this court should itself consider whether the construction of the statute is not wholly lacking in merit, in order that it may determine the federal questions and federal rights presented. (*Terre Haute & I. R. Co. v. Indiana ex rel. Ketcham,* 194 U. S. 579; *Ward v. Love County,* 253 U. S. 17; *Baltimore & Ohio R. R. Co. v. Maryland,* 87 U. S. (20 Wall) 643; *Klinger v. Missouri,* 80 U. S. (13 Wall) 257.) In the first of these cases the state court's decision was based upon an untenable construction of a railway charter.

Furthermore, even though this court were bound by the state construction of the statute, it is not precluded by its reasoning but must exercise an independent judgment when called upon to determine the federal question whether the statute is void for uncertainty under the Fourteenth Amendment and the federal question whether the act as construed and applied to the concrete facts of this case is repugnant to the clauses of the federal constitution relied upon by appellants. (*Ward v. Krinsky,* 259 U. S. 503.)

Whether This Court Adopts Its Own View or Follows the Construction Adopted by the Lower Court or Follows the Latest Decision by the Supreme Court of California, the Statute is Void for Lack of a Sufficient Standard or Measure of What Constitutes "Unreasonable Waste of Natural Gas" to Satisfy the Due Process Clause of the Fourteenth Amendment.

This court long ago declared: "If the Legislature undertakes to define by statute a new offense and provide for its punishment, it should express its will in language that need not deceive the common mind. Every man should be able to know with certainty when he is com-

mitting a crime. * * * It would certainly be dangerous if the Legislature could set a net large enough to catch all possible offenders and leave it to the courts to step inside and say who could be rightfully detained and who should be set at large." (*United States v. Reese,* 92 U. S. 214, 220, 221.)

Indeed, it is a rule of ancient origin that statutes "ought to be plainly and clearly, and not cunningly and darkly penned, especially in legal matters" (Mr. Justice Brewer, in *Chicago N. W. R. R. Co. v. Dey,* 35 Fed. 866, 876). "No penal law can be sustained unless its mandates are so clearly expressed that any ordinary person can determine in advance what he may and may not do under it." In that case the statute held void made it unlawful to charge more than a *"reasonable rate."*

As stated by Chief Justice Taft in *Cline v. Frink Dairy Co., supra:*

> *"The principle of due process of law requiring reasonable certainty of description in fixing a standard for exacting obedience from a person in advance has application as well in civil as in criminal legislation (A. B. Small Co. v. American Sugar Ref. Co.,* 267 U. S. 233, 238 *et seq.,* 69 L. Ed. 589, 593, 45 Sup. Ct. Rep. 295), *but the fact that it is often necessary to investigate and decide certain questions in civil cases is not controlling or persuasive as to whether persons may be held to civil or criminal liability for not deciding them rightly in advance.* * * *"

The provision of the statute here involved, is both criminal and civil in its nature (see Secs. 8b, 8d, 9, 14a, 14b, 21). Section 8b provides: "The unreasonable waste of natural gas by the act, omission, sufferance or insistence of the lessor, lessee or operator of any land

containing oil or gas, or both, whether before or after the removal of gasoline from such natural gas, is hereby declared to be opposed to the public interest and is hereby prohibited and declared to be unlawful. The blowing, release or escape of natural gas into the air shall be *prima facie* evidence of unreasonable waste." (Stats. 1929, Chap. 535.) The other sections above referred to provide for its enforcement by civil and criminal proceedings.

The statute nowhere defines what shall constitute "unreasonable waste of natural gas" or "reasonable waste of natural gas," nor are the words "waste" or "unreasonable" anywhere defined in the act. *"The term 'unreasonable waste of natural gas' did not at the time of the enactment of said statute have, and has never since acquired, any established or settled meaning by usage or custom"* [R. 21]. *This allegation is admitted by the demurrer* to the petition for writ of prohibition. The statute prohibits no specific or definite act. It is to be noted that the statute does not prohibit any waste of natural gas, but only the unreasonable waste of natural gas, and impliedly permits a reasonable waste of natural gas. The words "waste" and "unreasonable" are *each* relative terms which may widely vary in meaning from one extreme to the other, depending on the viewpoint and the factors considered, and when used together demonstrate the absolute uncertainty as to the guide or standard to be applied.

It has been said that an attempt to define the word "reasonable" is like trying to count what is not number and to measure what is not space. As stated in *Louis-*

ville & Nashville R. R. Co. v. Interstate Commerce Commission, 184 Fed. 118:

> "The term 'reasonable' is very elastic in its meaning. It lacks the quality of certainty which is desirable in a statute. One man may give it a definition of a very broad, and another a very narrow, significance."

Likewise, the expression "to waste" is defined in Webster's New International Dictionary as: to spend or expend unnecessarily, carelessly, or without valuable result; to apply to useless ends; to squander. If applied to a useful and profitable end such as producing oil, is it wasted? What degree or extent of utilization is required and to what objects and under what circumstances? Waste may mean physical waste, or economic waste. Much depends upon the viewpoint from which the inquiry is approached, and what factors are to be considered and the relative weight of each. The matter may be approached from any number of viewpoints, as follows: 1. From the viewpoint of the individual operator, the financial and other circumstances of no two of whom are alike; 2. From the viewpoint of producers in the same part of the field; or in the same oil and gas stratum; 3. From the viewpoint of the whole field; 4. From the viewpoint of other fields; 5. From the viewpoint of producers and/or consumers of oil who are interested primarily only in the oil and gasoline produced, and the price thereof; 6. From the viewpoint of *consumers* of natural gas; or 7. From the viewpoint of the local community or of the state, or even of the nation. The statute itself does not indicate from which of these varying viewpoints the inquiry is to be approached.

The Insufficiency of the Statute Under the Latest Expression of the Highest State Court.

If this court adopts the last statement of the highest court of California on the subject, the inquiry, it may be argued, must be approached from three separate and distinct viewpoints: 1. "in view of the necessity of one landowner to make productive use of his parcel"; 2. "in view of the equal right of the adjoining owners not to be deprived of correlative production from their parcels"; 3. "in view of the right of the public to prevent the waste of that which cannot be replaced" [p. 50, Supplement to Brief of Appellees]. These three general classifications group the different viewpoints hereinabove stated, from which the inquiry is to be approached. This latest expression of the highest judicial tribunal of the state, if it can be said to settle the construction of the statute, should be followed by this court (*Bauserman v. Blunt,* 147 U. S. 647, 653). The result, however, is just the same except that this statement of the Supreme Court of California demonstrates the uncertainty of what is meant by the "unreasonable waste of natural gas" by expressly stating the inquiry is to be approached from these varying viewpoints.

1. *Approaching the Matter From the First of the Three Viewpoints Expressed by the State Court.*

The necessities of each landowner to make productive use or his or her parcel will vary widely, depending upon the financial condition of each landowner, the amount of oil storage he may have on hand, the contracts he may have to supply oil or gas, the extent of his indebtedness, whether or not the cost of drilling has been paid, and

many other factors, the exact weight, nature and importance of which is not disclosed. If one operator can take into view his own necessities, then each operator in the field can do likewise, and necessarily, each operator must take into view the necessity of every other operator.

2. *Approaching the Matter From the Second Viewpoint.*

This viewpoint is that of the equal right of adjoining owners not to be deprived of correlative production from their parcels; but the factors to be considered and the relative weight and importance of each are not disclosed. It depends upon whether adjoining owners are producing from the same zone, the number and relative location of their wells, the respective optimum gas-oil ratios of wells (which vary in each zone, even in the same part of the field and during the life of each well, increasing as the well becomes older according to the admitted facts), the extent of the relative oil production, the extent to which adjoining owners have contracts for the natural gas produced by them, and other factors, many of which would be difficult, if not impossible, of ascertainment. Much might depend upon whether the optimum gas-oil ratio *for each well* is to be used as a factor or test or whether the normal or reasonable gas-oil ratio *for the field* is the test. While the former might be ascertained by each operator as to his own wells, it would be impossible for him to acquire knowledge of whether wells on adjoining properties were complying with this test. The statute provides no means of affording such information.

If the normal or reasonable gas-oil ratio *for the field* is a factor, it is wholly insufficient as a guide or standard because of the many and varying complex factors in-

volved beyond the knowledge of the operator, and also because of the inherent uncertainty and inability of determining what constitutes a normal or reasonable gas-oil ratio for the field. If the operator had means of acquiring knowledge of all the varying gas-oil ratios of wells in the field and of the different zones from which they were producing, and the varying conditions and circumstances of each, he would have to guess at what point the ratio exceeded a normal or reasonable gas-oil ratio for the field. The opinion of the lower court refers to a well which is commonly called a "gasser," that is, "a well that produces an insignificant quantity of oil" compared to the amount of gas utilized in its production. "We have instanced an extreme possibility, but our interpretation of the act is that it was intended to remedy a lesser but nevertheless unreasonable degree of waste of the same character" [R. 362]. There is no way of determining when such a situation arises. Undoubtedly there would be many wells whose optimum gas-oil ratio would be much below what many would call an unreasonable gas-oil ratio for the field. Is one adjoining operator, the optimum gas-oil ratio of whose well is 8,000 or 10,000 cubic feet of gas per barrel of oil, to be permitted to operate on that basis, assuming such ratio is not to exceed a reasonable or normal gas-oil ratio for the field, while his immediately adjoining neighbor, the optimum gas-oil ratio of whose well is 2,000 or 3,000 cubic feet of gas per barrel of oil, is limited to such decreased amount of natural gas? The admitted facts are that the gas-oil ratios vary widely [R. 8]. They run from 115 cubic feet per barrel of oil to 18,000 cubic feet per barrel of oil [R. 269, Exhibits B and C, 281]. This court has

said that the use of the word "normal" in a statute referring to "normal shipments in interstate commerce" is too vague and indefinite to satisfy the due process clause (*United States v. Pennsylvania R. Co.*, 242 U. S. 208, 237-238). Many other like expressions are condemned in the cases we have cited.

3. *Approaching the Matter From the Viewpoint of the Third of the Three Viewpoints Expressed by the Supreme Court of California.*

This viewpoint is that of the public interest, or "the right of the public to prevent the waste of that which cannot be replaced," in the interest of reserving the same for the benefit of the consuming general public: Who is to determine the extent of the curtailment required by the public interests? How can any operator determine in advance how much curtailment should be made for such purpose? What are the factors to be used, and what is the relative weight to be given to each? This court has said that a statute leaving to varying concepts and ideas of citizens to whom the statute is directed or of courts or juries later called upon to pass upon the matter of "how much restraint of competition is in the public interest, and how much is not" is "so shifting, vague and indeterminate a standard" that it does not satisfy the requirements of the Fourteenth Amendment, as it requires setting sail "on a sea of doubt" (*Cline v. Frink Dairy Co.*, 274 U. S. 445, 462).

4. *Applying All Three Viewpoints Together.*

When we come to apply all three of these varying viewpoints and the various and complicated factors and their relative weight, the manifold complexity and uncertainty

presented is so manifest that it does not require argument to show that it goes far beyond what is required to satisfy the due process clause under the decisions of this and other courts we have cited. As stated by this court in the Cohen Grocery Company case, "It leaves open, therefore, the widest conceivable inquiry, the scope of which no one can foresee, and the result of which no one can foreshadow or adequately guard against" (*United States v. Cohen Grocery Co.*, 255 U. S. 81, 89).

If This Court Adopts Its Own View of the Statute the Vice of the Statute in Failing to Provide Any Ascertainable or Sufficiently Certain Measure or Standard of Conduct, Clearly Appears.

In addition to what has already been said as to the inherent uncertainty, this uncertainty is multiplied manyfold when the various factors which may or may not be considered are approached, such as the financial profit or loss, depending on the various viewpoints; financial conditions considered from the various viewpoints; market demands, which depend upon changing conditions; the supply of both oil and gas available from this or other fields; various other economic conditions, such as transportation facilities, pipe lines available, the sources of supply, and the amount available therefrom from time to time; geological conditions, which vary in different fields and in each stratum in the same field, and in various portions of each stratum; the position of the particular operator in the field, the physical and/or mechanical conditions under which he is operating; the size of his holdings; other commodities coming into competition with oil and/or gas, such as coal, electric energy, etc.; the relative

importance to be given to oil and/or gas as a factor; whether the gas has been utilized; the degree of utilization required; whether when once used it must be put to other uses; how many times it must be used, etc.

Naturally, what might be considered waste or unreasonable waste or reasonable waste would vary greatly, depending upon circumstances, conditions and the viewpoint; and even from the same viewpoint, it might vary considerably, depending upon different ideas or theories or philosophies of each group and the relative weight which is to be attached to each viewpoint and to each factor. The varying statutes on the subject show the varying ideas and viewpoints. None of these statutes has used the term "reasonable waste of natural gas." Different judges may construe, and, as we have clearly shown, have construed, the act differently and widely at variance with one another. Likewise, the state officials and their deputies, as well as the court, are each left free to adopt his own arbitrary standard, viewpoint or concept which they could change and vary at will.

Notwithstanding all these complexities and uncertainties, each producer is required, before expending the large amount of money required to acquire and drill oil wells (in this case, each costs $150,000), or before making contracts, for producing and supplying large quantities of oil or its products, to guess at which of the many possible constructions was intended, and to consider under any viewpoint the many complicated and complex factors and determine them correctly, at the peril that after he has spent his money or made his contract, he will be enjoined or prosecuted. The statute leaves him wholly at sea! The situa-

tion presented for the individual citizen to determine in advance as to what he can and cannot do under the statute is much more complex and intricate than was involved and held void in any of the cases hereinafter cited, decided by this court.

The cases thoroughly establish that where, as in the case at bar, there is no common law or other background defining by judicial decisions the thing prohibited, and the words used in a statute have not obtained a definite meaning through custom and usage, and where the thing prohibited is new and complex, and does not relate to matters of the every-day life of the average man, the statute is void, and lacks "due process," in the absence of a definite and certain guide or standard of conduct, so that those who are called upon to obey it may know with certainty in advance of court action what is prohibited and what is permitted, and also because such a statute permits the exercise of arbitrary and discriminatory powers it also violates the "equal protection" clause of the Fourteenth Amendment. *Cline v. Frink Dairy Co.*, 274 U. S. 445 (distinguishing types of cases cited by appellees); *United States v. Cohen Grocery Co.*, 255 U. S. 81 (distinguishing cases); *Small Co. v. American Sugar Refining Co.*, 267 U. S. 233; *Connally v. General Construction Co.*, 269 U. S. 385; *International Harvester Co. v. Kentucky*, 234 U. S. 216; *United States v. Pennsylvania R. Co.*, 242 U. S. 208; *United States v. Reese*, 92 U. S. 214; *Yick Wo. v. Hopkins*, 118 U. S. 356;

Weed & Co. v. Lockwood, 255 U. S. 104; *United States v. Brewer,* 139 U. S. 278. See also: *Ex parte McNulty,* 77 Cal. 164; *Hewitt v. Board of Medical Examiners,* 148 Cal. 590; *In re Clarence Lockett,* 179 Cal. 581; *People v. Pace,* 73 Cal. App. 548; *In re Peppers,* 189 Cal. 682; *United States v. Capital Traction Co.,* 34 App. D. C. 592, 19 Ann. Cas. 68; *Chicago N. W. R. R. Co. v. Dey,* 35 Fed. 866 (leading case, opinion by J. Brewer); *Tozer v. United States,* 52 Fed. 917 (a leading case); *Louisville & Nashville R. R. Co. v. Commonwealth,* 99 Ky. 135; *Standard Chem. & Metals Corp. v. Waugh Chem. Co.,* 231 N. Y. 51, 131 N. E. 566; *Detroit Creamery Co. v. Kinnane* (Mich.), 264 Fed. 845; *United States v. Bernstein,* 267 Fed. 295; *Cook v. State,* 26 Ind. App. 278, 59 N. E. 489; *In re Schmolke,* 199 Cal. 42; *State v. Board of Canvassers,* 159 Wis. 216, 150 N. W. 542; *In re Toyu Kee,* 12 Haw. 164; *State v. Diamond,* 27 N. M. 477, 20 A. L. R. 1527; *Xenia v. Schmidt,* 101 Ohio St. 437, 130 N. E. 24; *Commonwealth v. Maletsky,* 203 Mass. 241; *Anderson v. Manchester Fire Assn.,* 59 Minn. 182, 60 N. W. 1095; *Dowling v. Lankershire Ins. Co.,* 92 Wisc. 63, 65 N. W. 738; *United States v. Sharp,* Fed. Cas. 16,264, 27 Fed. Cas. 1041.

That the rule applies to civil, as well as criminal, statutes, see: *Cline v. Frink Dairy Co.,* 274 U. S. 445, 463; *Small v. American Sugar Refining Co.,* 267 U. S. 233; *Standard Chem. etc. Corp. v. Waugh,* 231 N. Y. 51, 131 N. E. 566; *Hewitt v. Board of Medical Examiners,* 148 Cal. 590.

The So-Called "Rule of Reason" Does Not Afford a Valid Statutory Standard of Conduct Under the Fourteenth Amendment in a Case Like This.

The word "*reasonable*" (even if not used with "waste," which is equally uncertain and vague) is uniformly held not to be a sufficiently definite standard of conduct, except where used in connection with a subject having a judicially determined or common law meaning, as in the restraint of trade cases, or where used in reference to a simple subject, as in the speed cases, where a person of ordinary intelligence from common and everyday experience is familiar with what is reasonable.

a

Cline v. Frink Dairy Company, 274 U. S. 445, ("reasonable profit" in Anti-trust Act. The court distinguishes the speed cases, and other types of cases).

United States v. Cohen Grocery Co., 225 U. S. 81 ("unjust or unreasonable rate of charge" in handling or dealing in or with any necessaries of life—distinguishing other types of cases).

International Harvester Co. v. Kentucky, 234 U. S. 216, 232-233 ("market value under fair competition, and under normal market conditions").

United States v. Pennsylvania R. Co., 242 U. S. 208 (furnishing tank-cars "upon reasonable request and reasonable notice").

Tozer v. United States, 52 Fed. 917, opinion by J. Brewer (prohibiting undue and unreasonable preferences and advantages between shippers).

Louisville etc. R. R. Co. v. Commonwealth, 99 Ky. 132, 35 S. W. 129 (prohibiting from charging "more than a reasonable or just rate").

Schaezlein v. Cabaniss, 135 Cal. 466 (requiring the sanitary condition of the workship or factory "to be reasonably good").

In re Williams, 74 Cal. App. 331 ("reasonable number of teachers" in public dance halls).

See also other cases above cited involving standards not nearly so uncertain and complex as the statute here involved.

This court in the *Cohen Grocery Co. case, supra,* referring to the Lever Act, a so-called profiteering statute, adopted by Congress as a wartime measure, which made it "'unlawful for any person wilfully * * * *to make any unjust or unreasonable rate or charge in handling or dealing in or with any necessaries*'", held that the statute did not furnish a sufficiently definite or ascertainable standard of guilt under the Federal Constitution. The court said:

> "*Observe that the section forbids no specific or definite act. It confines the subject-matter of the investigation which it authorizes to no element essentially inhering in the transaction as to which it provides. It leaves open, therefore, the widest conceivable inquiry, the scope of which no one can foresee, and the result of which no one can foreshadow or adequately guard against.* In fact, we see no reason to doubt the soundness of the observation of the court below in its opinion to the effect that, *to attempt to enforce the section would be the exact equivalent of an effort to carry out a statute which in terms merely penalized and punished all acts detrimental to the public interest when unjust and unreasonable in the estimation of the court and jury. And that this is not a mere abstraction finds abundant demonstration in the cases now before us*; since in the briefs in these cases the conflicting results which have arisen from the painstaking attempts of enlightened judges in seeking to carry out the statute in cases brought before them are vividly portrayed. * * *
>
> "And again, this condition would be additionally obvious if we stopped to recur to the persistent efforts which, the records disclose, were made by administrative officers, doubtless inspired by a zealous effort to discharge their duty, to establish a standard of

their own to be used as a basis to render the section possible of execution." (*United States v. Cohen Grocery Co.*, 255 U. S. 81, 89-90.)

It requires no argument or analysis to show that the foregoing statement applies with full force to this case. This case presents a double uncertainty from the use of the words "waste" and "unreasonable", to a much greater degree than the double uncertainty presented in *Connally v. General Construction Co., supra,* involving a state statute of Oklahoma requiring the contractor upon public works to pay "not less than the *current rate* of per diem wages in the *locality* where the work is performed." The court said:

> "And a statute which either forbids or requires the doing of an act in terms so vague that men of common intelligence must necessarily guess at its meaning and differ as to its application violates the first essential of due process of law." (269 U. S. 385, 391.)

The court further said that the question could not be solved by resort to construction:

> "*For the vice of the statute here lies in the impossibility of ascertaining, by any reasonable test, that the legislature meant one thing rather than another* * * *."

This court said this uncertainty resulted *from the use of words having no fixed meaning in themselves or a meaning made definite by a judicial definition.*

> "* * * The result is that the application of the law depends * * * upon the probably varying impressions of juries * * *. The constitutional guaranty of due process cannot be allowed to rest upon a support so equivocal." (269 U. S. 385, 394, 395.)

We particularly call the court's attention to the great similarity between the case at bar and the recent decision of this court in *Cline v. Frink Dairy Co.*, 274 U. S. 445, wherein this court held void under the due process clause the Anti-trust Act of Colorado which exempted from its operations an agreement or association "the object and purposes of which are to conduct operations *at a reasonable profit* or to market *at reasonable profit* those products which can not otherwise be so marketed". (274 U. S. 456.) This court said:

> *"Such a basis for judgment of a crime would be more impracticable and complicated than the much simpler question in the L. Cohen Grocery Co. case, whether a price charged was unreasonable or excessive.* THE REAL ISSUE WHICH THE PROVISO WOULD SUBMIT TO THE JURY WOULD BE LEGISLATIVE, NOT JUDICIAL. *To compel defendants to guess on the peril of an indictment whether one or more of the restrictions of the statute will destroy all profit or reduce it below what would be reasonable, would tax the human ingenuity in much the same way as that which this court refused to allow as a proper standard of criminality in International Harvester Co. v. Kentucky,* 234 U. S. 216, 232, 233, 58 L. ed. 1284, 1292, 34 Sup. Ct. Rep. 853." (274 U. S. 457.)

This court clearly analyzed and distinguished *Standard Oil Co. v. United States,* 221 U. S. 1, and other cases, cited in this case by the state courts and appellees, arising under the federal Anti-trust statute laying down the so-called "rule of reason", by saying: "The *common law precedents* as to what constituted an undue restraint of trade were quite specific enough to advise one engaged in interstate trade and commerce what he could and could not do under the statute * * *." The speed and negligence cases were therein distinguished upon the ground

that they relate to matters of common everyday knowledge of what is reasonable conduct so that the average man would know in advance what could or could not be done. After distinguishing these cases, this court said:

> "But it will not do to hold an average man to the peril of an indictment for the *unwise exercise of his economic or business knowledge involving so many factors of varying effect that neither the person to decide in advance nor the jury to try him after the fact can safely and certainly judge the result.* * * * *A legislature must fix the standard more simply and more definitely before a person must conform or a jury can act.*" (*Cline v. Frink Dairy Co.*, 274 U. S. 445, 465.)

And in *United States v. Trenton Potteries Co.*, 273 U. S. 392, this court said that by reason of the inherent uncertainty and vagueness of the word "reasonable", "the difference between legal and illegal conduct in the field of business relations" should not be made to "depend upon so uncertain a test as whether prices are reasonable—a determination which can be satisfactorily made only after a complete survey of our economic organization and a choice between rival philosophies". (273 U. S. 392, 398.)

Applying the foregoing decisions and principles to the statute here involved: Naturally, what may be considered waste or reasonable waste or unreasonable waste will vary greatly, depending upon circumstances, conditions, the factors considered and the viewpoint, and even from the same viewpoint may vary considerably, depending upon different ideas or theories or philosophies of different individuals and groups. Not only will these views, ideas and concepts vary greatly but they will often be diametrically opposed, one to the other. For instance, from the

viewpoint of an operator interested in obtaining the largest financial return from his oil well, if he is using gas in producing oil he is not wasting such gas, for the gas serves a useful purpose in flowing and producing the oil. The transaction from a financial viewpoint is profitable and his own finances may be such that he needs the money. Certainly if he is using no more gas than is reasonably necessary to efficiently operate his well, and his operations are not injuriously affecting the wells of other owners or operators in the same zone or field, and if he secures from the natural gas so used all of the casing-head gasoline which may be produced therefrom, and if he uses or sells all the residual dry gas that he is able to use and sell, and the remaining dry gas is not salable or usable and cannot profitably be stored, he is not unreasonably wasting such natural gas, or even wasting it.

The term "waste" is the antithesis of "use", but what degrees of utilization are required by this statute, and how many times must the gas be used? When does utilization of natural gas become waste? If it is used at all, is it wasted? Does the word "waste" mean dissipation, underground waste, economic waste, or financial waste? By what test or standard can it be determined whether natural gas is expended unnecessarily, carelessly or without valuable result, or applied to useless ends? By what means can it be determined what constitutes useless consumption or expenditure? What factors are to be considered in determining whether there is a "loss without equivalent gain"? These questions, and perhaps many others, might be asked in attempting to ascertain the test or criterion of what was intended to constitute the waste of natural gas. Assuming, for the

sake of argument, they could be answered, by what test or criterion could it then be determined when such waste is "reasonable" and when it is "unreasonable", for as this second question is answered will depend the answer to the question whether the conduct of the individual is permitted or prohibited.

Assuming that an average of 2500 cubic feet of natural gas per barrel of oil is produced in Santa Fe Springs oil field, whereas in Signal Hill oil field the ratio is 5000 to 1 and in Ventura Avenue oil field it is 10,000 to 1, and in Kettleman Hills oil field it is 20,000 to 1, so that the utilization of gas in producing oil in Sante Fe Springs is twice as great as it is in Signal Hill, four times as great as it is in Ventura Avenue, and eight times as great as it is in Kettleman Hills, in that the same quantity of natural gas will produce this much more oil, are the Kettleman Hills and the other fields having a higher gas-oil ratio to be shut in and cut down; and if so, according to what rule, guide or standard? Is the available market or gas outlet to be the measure of the amount of gas that can be utilized in producing oil or which may be blown into the air? If so, what provision of the statute can be pointed to for laying down this rule? If so, the company fortunate enough to have secured or able to secure a market for its gas, perhaps sufficient to consume all gas produced by it, can operate all of its oil wells to capacity, whereas his less fortunate competitor will be able to produce little or no oil. One oil field, by reason of a larger or more continuous supply of natural gas, may have caused pipe lines to be constructed to it sufficient to supply all or a large part of the current demands, whereas the producers

in another oil field coming into production later, or which may be remote from the market centers of natural gas, will be able to produce less oil, or perhaps no oil at all. Is the optimum gas-oil ratio of each well or the reasonable gas-oil ratio of the zone or of the whole field the measure? Or to what extent is each a factor? Are the current demands for oil a factor, and to what extent? Are we to consider the local demands, the state demands, or the national demands? To what extent are existing contracts calling for present or future deliveries of oil to be taken into consideration? To what extent are provisions of the oil leases which require diligent drilling and operation to be considered? To what extent is the tremendous cost of drilling and existing investments to be considered? To what extent are the financial obligations of the individual operator, and his dependency upon the production of oil to meet them to be considered? To what extent are natural conditions which vary in different fields and in different oil producing strata or zones in the same field, and which vary even in the same zone in different parts of the field and which vary in each well during its life and which are not known until penetrated by the drill after a large investment, to be considered? If the enforcement of the statute under any of the varying concepts of the statute will cause the oil operator to lose his investment, or to fail to realize an adequate return therefrom, or to be unable to meet his financial obligations, or to lose his oil lease, or to be unable to meet his contracts for delivery of oil, or to shut in or kill any of his oil wells, is such resulting *waste* and loss of property and money a factor, and if so, to what extent?

The foregoing and many other important questions arise, and so far as the statute is concerned the operator is wholly in the dark as to how these questions are to be answered, and hence is unable to make a contract to drill a well, or a contract for the delivery or sale of oil or gasoline, or a contract for future delivery of gas, or to determine his present or future operations—with any assurance that he can perform, or that his conduct or operations will not later be held in violation of this statute or that he will not be prosecuted under its penal provisions.

The absolute uncertainty and lack of any certain guide or standard for obedience to this statute is further exemplified by the varying and shifting interpretations which have been placed upon it by opposing counsel as well as by attorneys for other oil companies interested in its enforcement. For instance, the director of natural resources and opposing counsel in the original complaint pray for and request an order limiting the amount of natural gas which can be produced with a barrel of oil out of any well in Sante Fe Springs oil field to 2500 cubic feet per barrel, and in addition to this to prohibit the escape or blowing into the air of *any* of the natural gas so produced. [R. 55.] This was sought, notwithstanding that the gas-oil ratios in different zones and in the same zone in different parts of the field and even in the same well, are controlled largely by the laws of nature and vary widely, and a great many of them exceed the above mentioned ratio, and notwithstanding that there are no present available uses or market for much of the gas produced, with the result that a large number of wells which could not be cut down below such ratio would have to be shut down and

killed. Next, during the course of the hearing, they suggested raising the gas-oil ratio limit to 3000 cubic feet per barrel. Then next, an amendment to the complaint was filed in which they set up that the blowing into the air of more than 10% of the natural gas produced from any well would constitute unreasonable waste [R. 267]. They proposed an injunction cutting the then daily production of approximately 524,000,000 cubic feet of gas per day down to 300,000,000 cubic feet of gas per day and prorated the allowable gas production from each lease in proportion to the potential oil production from such lease. Then they produced the form of preliminary injunction which was granted, which limited the gas production from the field to the available uses and outlets for natural gas with a permissible margin of 100,000,000 cubic feet of gas per day, and allocated this allowed gas production on the basis of only 1200 cubic feet of gas to each barrel of the oil potential of each lease. So far as the preliminary injunction is concerned, there is nothing in it prohibiting any operating well from blowing ALL the allowed production to the air [see R. 288]! The effect of this drastic order on petitioners is set forth in the petition and the statement of facts herein. Yet on page 21 of respondents' brief in the lower court it is said that this order is most reasonable and might be made "much more restrictive." Finally, on pages 15-19 of respondents' said brief, we find still another definition of unreasonable waste and allowable blow to the air drawn out of the magic box of the director of natural resources and his counsel. On page 19 thereof, he says:

> "Any production with a gas-oil ratio above 8000 cubic feet of gas should be prohibited by the final decree."

If such a formula exists or if the criterion of gas outlets with a reasonable tolerance of waste was intended by the Legislature to be the limit of gas which may be used in producing oil,—the Legislature should have laid it down in clear and unmistakable terms.

The mere fact that so many variant, shifting views can be thus brought forward and suddenly thrown at the individual operator, shows the absolute lack of any test or criterion laid down in the statute. Such a statute is like the sphinx of Greek mythology, a winged *monster*, represented with a woman's head and a lion's body, *that destroyed those unable to guess* a riddle that she propounded. It is because of the lack of a standard prescribed by the Legislature which the citizen can understand and apply with any degree of safety, and which advises him in advance what he can and cannot do, that the courts have so uniformly condemned statutes of this sort. However honest or sincere public officials may be, the fact that arbitrary action is permitted by the statute is sufficient to condemn it, for the reason that it violates the fundamental principle that this is "a government of laws and not of men."

Mr. Weil, attorney for the General Petroleum Company, who with other counsel for major oil companies participated to a great extent in drafting the provisions of the statute here involved, frankly stated at the hearing of the preliminary injunction (in substance) that the intent of the drafters was that utilization of natural gas, beyond what was necessary to produce the amount of oil required to supply the current demands for oil, should be regarded as unreasonable waste and that was as far as the statute

went. The attorney for the Shell Oil Company contends that the term "unreasonable waste" is limited to physical waste.

In the complaint filed by plaintiffs against operators in the Signal Hill oil field which, although much smaller than Santa Fe Springs oil field, is divided into zones with a different gas-oil ratio for each zone, and in the complaint against the operators of the Kettleman Hills oil field, no gas-oil ratio limit whatever is requested. In the Ventura Avenue oil field the proceeding was instituted before the Supervisor of Oil and Gas and an appeal taken from his order to the district board controlled by the operators in that field: they were satisfied with the order so made by themselves on the appeal. We cite these instances, not with the idea of having them considered as evidence in any way, but as showing the many possible and different interpretations which may be placed upon the provisions of the statute which we claim to be void because of vagueness and lack of a sufficiently definite criterion or standard for the citizen to determine with certainty in advance what he can and cannot do under its provisions. As justification for this line of argument, the Supreme Court of the United States, in the *Cohen Grocery Company* case, appends in its footnote the instructions to the jury given by various lower courts in construing the Lever Act which was a wartime and emergency measure to prevent the charging of unreasonable profits upon necessaries of life. Certainly the necessity of protecting the people from profiteering in the necessaries of life during the emergencies of war far exceeds the alleged emergency for conserving natural gas in California. * * *

The statute is incapable of construction as merely a regulatory enactment. It vests in the supervisor of oil and gas (if the statute is sought to be enforced through the provisions of sections 8d, etc.), in the first place; and a judge of the Superior Court (if the statute is sought to be enforced through the provisions of section 14b), in the second place; or in a judge or jury (if the statute is sought to be enforced through the penal provisions of section 21), in the third place—arbitrary power, not only to regulate but to destroy. The word "arbitrary" is defined by Webster to mean "not governed by any fixed rule or standard," and is used by us in that sense.

The vice of the statute lies, not in the difficulty of applying a rule or standard laid down in the statute, as suggested by counsel, but in the impossibility of determining by establishing canons of construction what criterion or test or guide or standard is to be used in determining whether the statute has been violated or not, for the statute nowhere defines the term "waste of natural gas" or "reasonable waste of natural gas" or "unreasonable waste of natural gas." However cautious, careful and law-abiding a citizen may be, he is required to guess, at his peril, as to what is prohibited or permitted. As stated in the *Cohen Grocery Company* case, *"It leaves open * * * the widest conceivable inquiry, the scope of which no one can foresee, and the result of which no one can foreshadow or adequately guard against."*

The Uncertainty Is Not Eliminated by Reference to Other Provisions of the Statute.

Opposing counsel suggest that the uncertainty in the statute is eliminated by the emergency clause of the 1929 statute, inserted therein for the purpose of exempting the statute from the referendum provisions of our Constitution. However, the recital referred to merely declares that

> "There is now being blown into the air and wasted on the average of approximately 500,000,000 cubic feet of gas daily. New fields producing heavily of natural gas are being opened up, which would *tend* to add to the amount of natural gas being blown into the air and wasted and lost."

It will be noticed that this clause does not state that the gas blown into the air and lost is "*unreasonably wasted.*" The statute permits a reasonable waste of natural gas, and it may well be that much or even all of the gas referred to comes within this category.

Section 8d of the Act might throw light upon what is and what is not to be regarded as an "unreasonable waste" of gas where gas is produced from any *oil* well, except for the provisions thereof hereinafter referred to, and except for the fact that it is void under the federal Constitution for the reasons hereinafter set forth, so that it cannot be used against appellants.

Section 8d provides that upon complaint being made to the director of natural resources by any person operating in an oil field, or upon the suggestion of the supervisor of oil and gas, alleging that an unreasonable waste of gas exists or is threatened in any field or fields, he shall order the state oil and gas supervisor to hold a hearing and to

give notice of the time and place thereof as prescribed therein, both by publication and by notice to each lessor, lessee or operator of any oil and gas well in said field in so far as known to him. The section then provides that all persons interested shall be entitled to be heard and present testimony either oral or written, and provides for subpoenaing of witnesses, taking of depositions, etc. The section then contains the following language:

> "* * * Upon the conclusion of said hearing the state oil and gas supervisor shall determine whether or not there is an unreasonable waste of gas in said field, in existence or threatened, and shall also determine *the extent to which the waste of gas therein occurring or threatened is unreasonable.* If it shall appear that gas is being produced from *any oil well or wells in quantities exceeding a reasonable proportion to the amount of oil produced from the same well or wells, even though it is shown that* SUCH EXCESS *gas is being used in the generation of light, heat, power or other industrial purpose and that there is* sufficient other gas available for such uses from other wells in the same or other fields in which the gas produced is *not in excess of the amount which bears a reasonable proportion to the amount of oil produced from such other wells* and that there are adequate gas-pipe-line connections between such other wells and the place of utilization of such gas the state oil and gas supervisor shall hold that *such excess production of gas is unreasonable waste thereof if such holding will not cause an unreasonable waste of gas in any other field.* If the waste of gas be found unreasonable an order shall be made directing that such unreasonable waste of gas shall be discontinued or refrained from TO THE EXTENT STATED IN SAID ORDER. * * *"

Here we find a concrete case which may be illustrated thus: If it is found that oil well *A* is producing gas in quantities exceeding a reasonable proportion to the amount

of oil produced therefrom, even though said excess is being used in the generation of light, heat, fuel, power or other industrial purpose, the state oil and gas supervisor is *required* by the *mandate of the statute* to hold that such excess of gas is unreasonable waste, *if there is sufficient other gas available for such uses from other wells in the same or other fields in which the gas produced is not in excess* of the amount of gas which bears a reasonable proportion to the amount of oil produced from such other oil wells and there are *adequate* gas-pipeline connections between such other wells and the place of utilization of such gas *"if such holding will not cause an unreasonable waste of gas in any other field."* But for the words last quoted this might throw some light on some of the matters to be considered! However, these words create more confusion! How can it be told from the statute when such a condition exists? What factors must the operator consider? Furthermore, section 8d makes it uncertain whether the basis or test is each *well* or each *field,* and requires a comparison of both! What are "adequate gas-pipe-line connections"? Each of these would require accurate knowledge of matters under the control of others, such as the gas-oil ratios of other wells, conditions in other fields, and a study of so many complicated economic and other factors, so that even if the section were not so clouded in doubt as to its meaning, it would not be valid as a rule or standard of conduct. The citizen's liberty and property rights cannot be made to depend upon a correct determination of such complex and changing economic conditions, dependent upon so many uncertain factors, knowledge of most of which he could not reasonably be expected to have. What is said in *Cline*

v. Frink Dairy Company, supra, by Chief Justice Taft completely settles this.

However, section 8d cannot be resorted to in construing the statute so as to make it valid against appellants. As already pointed out, that section is wholly void under the Fourteenth Amendment in that, although the supervisor of oil and gas finds an unreasonable waste of natural gas to exist, he is expressly permitted and authorized to order that the same may be discontinued only *"to the extent stated in said order"*. The vesting of this arbitrary, unguided and uncontrolled power brings the section exactly within the rule laid down by this court in *Yick Wo v. Hopkins,* 118 U. S. 356, where a similar power was attempted to be vested in public officials.

The plain invalidity of the provision of the section respecting the order authorized to be made at the conclusion of the hearing and proceedings provided for in section 8d, with which alone said section deals, and without which the section is so meaningless and useless that it clearly would not have been adopted, invalidates the whole section. This is made clear by what this court said in *Williams v. Standard Oil Co.,* 278 U. S. 235, in a similar situation where the statute declared that the invalidity of any provision thereof shall not affect the remainder thereof.

The elimination of section 8d from the statute leaves absolutely nothing in the statute throwing any light upon what standard of conduct is intended by the prohibition in section 8b against unreasonable waste of natural gas.

It may be argued that since the proceedings against appellants are not under section 8d and 14a but were under the alternative procedure specified in section 14b of the

statute appellants are not in position to complain, but the unsoundness of this view at once appears when it is considered that the provisions of section 8d are what the lower court relied upon in upholding the validity of the statute as against appellants' contention that it is void for uncertainty and lack of a sufficient standard, as will presently be shown. It also operates to deny appellants the "equal protection of the laws" (Point J, *post*).

The Provision of Section 8b of the Statute, Making the Blowing or Escape Into the Air of Natural Gas Prima Facie Evidence of Unreasonable Waste, Does not Aid the Statute.

The statute impliedly permits a reasonable waste of natural gas, and this provision merely places the burden of proof upon the operator to show that gas escaping or being blown into the air is reasonable waste and not unreasonable waste. Section 1833 of the California Code of Civil Procedure provides that *"Prima facie* evidence is that which suffices for proof of a particular fact *until contradicted and overcome by other evidence."* When a citizen assumes this burden of proof and produces evidence of the circumstances and the reasons and causes for gas being blown or escaping into the air, then the supervisor of oil and gas, or the judge or jury, as the case may be, has to determine from all of the evidence, including the *prima facie* presumption, whether there has or has not been an unreasonable waste of such natural gas. *But this does not aid the statute, for no guide or standard or test or criterion is laid down by which to determine whether or not the escape is waste or reasonable waste or unreasonable waste.* So we come back to the point from which we

started in our effort to determine whether there is any ascertainable or sufficiently definite test or standard or criterion provided in the statute to determine whether any given conduct is prohibited or permitted. Besides, this provision of the statute is itself also in violation of the due process clause of the federal Constitution (see point H hereof).

Recourse Cannot Be Had to the Statutes of Other States to Determine What Is Meant by "Unreasonable Waste of Natural Gas" in the California Statute.

We have examined these statutes and found them to be quite specific and definite. None of them or the decisions applying them uses the phrase "unreasonable waste of natural gas." They each define with particularity what is prohibited, and are varying in subject matter, scope, extent and nature. Assuming, for the sake of argument, that the Legislature intended that resort should be had to the statutes of sister states, the Legislature would be adopting by reference the statutes of other states, which cannot be done in any event, and the intent so to do must be expressed. The question would arise, should this court follow the Oklahoma statute, or should it follow the Indiana statute, or the Texas statute, or any other statute? Which definition and which statute is to be followed? Which of them expresses the particular legislative policy of this state? Obviously the very idea is absurd! As said by this court:

> "It would certainly be dangerous if the Legislature could set a net large enough to catch all possible offenders, and leave it to the courts to step inside and say who could be rightfully detained and who should be set at large." (*United States v. Reese*, 92 U. S. 214, 221.)

The Water Cases Cited by the Lower Court Are Not in Point.

The lower court in its opinion [R. 333] cites a number of suits in equity between private parties in controversies respecting subterranean waters. *None of these cases involved any statutes, and hence did not discuss or deal with the subject of the requisite certainty essential to a valid statute.* Furthermore, what is a reasonable use of percolating water on certain land, throws no light on what is a reasonable or unreasonable waste of natural gas. The former is fairly definite and certain, and is a matter so commonly settled by usage, custom and general experience, that, if used in a statute, it would come within the classification of the negligence and speed cases made by Chief Justice Taft in *Cline v. Frink Dairy Co., supra.*

In this case this court said:

> *"The principle of due process of law requiring reasonable certainty of description in fixing a standard for exacting obedience from a person in advance has application as well in civil as in criminal legislation* (A. B. Small Co. v. American Sugar Ref. Co., 267 U. S. 233, 238, *et seq.*, 69 L. ed. 589, 593, 45 Sup. Ct. Rep. 295), but *the fact that it is often necessary to investigate and decide certain questions in civil cases is not controlling or persuasive as to whether persons may be held to civil or criminal liability for not deciding them rightly in advance.* On questions of *confiscatory rates* for public utilities, for instance, courts must examine in great detail the circumstances and reach a conclusion as to a reasonable profit. But this does not justify in such a case holding the average member of society in advance to a rule of conduct measured by his judgment and action in respect to what is a reasonable price or a reasonable profit." (*Cline v. Frink Dairy Co.*, 274 U. S. 445, 463-464.)

The Statute Is Not Aided by the Provisions for Its Enforcement Through the Courts.

This is established by the last quotation. The standard essential to a valid legislative enactment under the Fourteenth Amendment to which obedience may be required, must be laid down by the Legislature and not by the courts, and must be so definite and certain that "any ordinary person" subject to its provisions "can determine in advance what he may and may not do under it" (J. Brewer, in 35 Fed. 876). It is not enough that as here *"The victim first learns of the existence of law by reading a decree enacting it in which he is condemned for its infraction"* (*State v. Johnson,* 61 Kan. 803, 60 Pac. 1068, 1077). The statute in that case attempted to give the court power to prescribe a schedule of reasonable rates in the form of a court decree and injunction. In condemning it the court used the following apt language:

> "* * * In the usual process of making laws and providing for their enforcement, there is an interim between their enactment and their execution, affording opportunity for thought and preparation by persons affected. Here no time is lost. When a freight rate is established by this court, it goes forth with judicial sanction of REASONABLENESS stamped upon it, and by a chancery decree a fixed rate is promulgated, and simultaneously its fairness judicially determined. *Thus the victim first learns of the existence of law by reading a decree enacting it, in which he is condemned for its infraction."* (60 Pac. 1077.)

This last sentence fits our case exactly. The victims (appellants) first learned of the existence of the law, laying down and also enforcing a rule of conduct by reading a decree exacting it, in which they and their property

are condemned for its infraction and immediately they are restrained and required to comply therewith.

None of the cases cited on page 29 or elsewhere in appellees' brief involved the question of the uncertainty of the statute or of its validity under the Federal Constitution, except *Mt. Vernon-Woodberry Cotton Duck Co. v. Alabama I. P. Co.*, 240 U. S. 30, where the court held it had full jurisdiction on this ground, and denied the motion to dismiss.

We therefore respectfully submit that the state statute involved is void on its face under the "due process" clause of the Fourteenth Amendment; that this federal question is inseparably interwoven with the jurisdiction of the court under the authorities above cited; that, under the principles and authorities set forth under *Point D* hereof and under this *Point G*, the state court has no jurisdiction under, or to enforce, such a statute; that, for the reasons under this point alone set forth, the judgment of the lower court must be reversed, and hence the motions to dismiss or affirm should be promptly denied.

POINT H.

The Prima Facie Evidence Clause of the Statute Violates the Due Process Clause of the Fourteenth Amendment.

Section 8d of the statute provides:

> "The blowing, release or escape of natural gas into the air shall be *prima facie* evidence of unreasonable waste."

The legislative declaration that proof of one fact or group of facts shall constitute *prima facie* evidence of an ultimate fact or issue, is valid under the Federal Constitu-

tion only if there is a rational connection between what is proved and what is to be inferred from it. The mere escape of gas throws no light upon, and does not in the least tend to prove, whether either the normal gas-oil ratio for the field or the best mean or optimum gas-oil ratio for each well is exceeded. Necessarily, some gas is produced with the oil, for they are found together in California, and neither can be produced without the other. If gas escapes at the well it therefore does not in the least tend to prove or disprove whether the proportionate gas and oil produced at the well is in the proportion required by the statute. If the gas escapes from the casinghead head plant after being produced from the well, it likewise does not tend to prove or disprove the reasonableness of the proportion of gas to oil produced from any well. If the gas escapes from either the well or the casinghead gasoline plant, the ordinary inference is that there must be some good reason therefor, for it is a matter of common knowledge that persons take reasonable care of their own concerns. In short, the plain truth is that there is no rational connection between mere escape of gas and the ultimate fact of unreasonable waste of natural gas which is sought to be inferred therefrom, if all the factors to be considered and their relative weight were ascertainable. Reasoning does not lead back from the happening of the escape of gas to its cause. There might be a hundred different reasons or causes therefor, no one of which would lead to the conclusion of waste or unreasonable waste. Since the statute here involved itself, by necessary implication, authorizes some escape of natural gas, and even waste of natural gas if it is not unreasonable,—to make *any* escape of natural gas *prima facie* evidence of unreasonable waste is to

make a lawful and permitted act *prima facie* evidence of an unlawful and prohibited act. This emphasizes the irrational and arbitrary character of the presumption attempted to be created.

How can it be said that the mere fact that natural gas is escaping or is being released or blown to the air furnishes any basis for determining, one way or the other, whether it is escaping or being released or blown unnecessarily or carelessly or without sufficient reason therefor? The plain and obvious inference is that the mere escape of gas furnishes no basis or connection as to the reason or necessity or cause therefor, or as to the reasonableness or unreasonableness thereof. The rational inference which would be drawn therefrom is that it is not being unreasonably wasted.

Since, therefore, "Reasoning does not lead back from the occurrence to its cause," to make the occurrence of the escape of natural gas *prima facie* evidence of unreasonable waste is arbitrary, and it violates the due process clause of the Fourteenth Amendment of the Federal Constitution. (*Western & A. R. Co. v. Henderson,* 279 U. S. 639; *Manley v. Georgia,* 279 U. S. 1; *In re Opinion of Justices,* 208 Mass. 619, 94 N. E. 1044; *McFarland v. American Sugar Ref. Co.,* 241 U. S. 79; *Adams v. New York,* 192 U. S. 585; *Re Peterson,* 253 U. S. 300; *State v. Boswick,* 13 R. I. 211; *Bailey v. Alabama,* 219 U. S. 219.)

Manley v. Georgia, supra, is closely in point. It involved a Georgia statute declaring that a bank insolvency shall be deemed fraudulent and subject the directors to imprisonment unless they repel the presumption of fraud

by showing that the affairs of the bank have been fairly and legally administered and generally with the same care and diligence that agents receiving a commission for their services are required and bound by law to observe. There, as in the case at bar, the charge against the defendants was in the general language of the statute, in the Georgia case it being alleged that the bank became fraudulently insolvent while the officers and directors were in charge, and in the case at bar it being alleged that the defendants are in charge of various wells and that natural gas is being unreasonably wasted therefrom [R. 43]. Both statutes placed the burden upon the defendant of proving the cause of the general result complained of and negativing every fact, whether act or omission, in the management of the property under their care from which the conclusion or ultimate fact sought to be proved might result. This court said:

> "* * * A *prima facie* presumption casts upon the person against whom it is applied the duty of going forward with his evidence on the particular point to which the presumption relates. A statute creating a presumption that is arbitrary or that operates to deny a fair opportunity to repel it violates the due process clause of the 14th Amendment. Bailey v. Alabama, 219 U. S. 219, 233, *et seq.*, 55 L. ed. 191, 198, 31 Sup. Ct. Rep. 145. Mere legislative fiat may not take the place of fact in the determination of issues involving life, liberty or property. 'It is not within the province of a legislature to declare an individual guilty or presumptively guilty of a crime.' McFarland v. American Sugar Ref. Co., 241 U. S. 79, 86, 60 L. ed. 899, 904, 36 Sup. Ct. Rep. 498." (279 U. S. 1, 6.)

In addition to making the above observations as to the statute, the court used the following language which is

also quite apt in the case at bar because of the inherent uncertainty in the statute:

> "* * * The statute does not specify the elements of the offense; and so the inference is not restricted to any particular point or specific issue. The facts so to be presumed are as uncertain and vague as the terms 'fraudulent' and 'fraud,' contrasted with 'fairly,' 'legally,' 'honestly,' and 'in accordance with law,' when used to describe the management of a bank. Connally v. General Constr. Co., 269 U. S. 385, 391, 70 L. ed. 322, 328, 46 Sup. Ct. Rep. 126; Cline v. Frink Dairy Co., 274 U. S. 445, 454, 71 L. ed. 1146, 1151, 47 Sup. Ct. Rep. 681. Nor is the generality of the presumption aided by the allegations of the accusation. The indictment merely follows the general words of the statute without specifying facts to disclose the nature or circumstances of the charge. * * *
>
> "* * * The connection between the fact proved and that presumed is not sufficient. Reasoning does not lead from one to the other. Hawes v. Georgia, 258 U. S. 1, 4, 66 L. ed. 431, 432, 42 Sup. Ct. Rep. 204. The presumption created by §28 is unreasonable and arbitrary. Bailey v. Alabama, and McFarland v. American Sugar Ref. Co., *supra.*" (279 U. S. 1, 6.)

In California the presumption attempted to be created by the statute does not merely create a temporary inference of fact that vanishes upon the introduction of opposing evidence but, as stated by this court in the *Western & A. R. Co. v. Henderson case, supra,* "creates an inference that is given effect of evidence to be weighed against opposing testimony and is to prevail unless such testimony is found by the jury to preponderate" (279 U. S. 639, 644).

Section 1833 of the Code of Civil Procedure of California provides: "*Prima facie* evidence is that which

suffices for the proof of a particular fact, *until contradicted and overcome by other evidence.*" Section 1961 of the said code provides: "A presumption (unless declared by law to be conclusive) may be controverted by other evidence, direct or indirect; but *unless so controverted the jury are bound to find according to the presumption.*"

In the case at bar neither the statute nor the allegations of the complaint sets forth any particular or specific acts of omission or commission which constitute the alleged unreasonable waste of natural gas by appellants. The necessary fair inference is that the *prima facie* evidence clause of the statute above referred to was relied upon and given full effect. This "net" was so large that appellants were "caught" in its "meshes"!

We therefore respectfully submit that the presumption attempted to be created is unreasonable and arbitrary, and comes within the full condemnation of the previous decisions of this court and violates the due process clause of the Fourteenth Amendment. This certainly presents a substantial federal question requiring full argument and review upon its merits by this court, and consequently a denial of the motions to dismiss or affirm.

POINT I.

The Statute Involved as Applied to Appellants Unconstitutionally Impairs Appellants' Lease Contracts.

The existence of appellants' lease contracts covering the properties operated by them in Santa Fe Springs oil field, and the provisions thereof authorizing and requiring appellants to operate the same continuously and diligently

in the production of oil and gas as long as petroleum in paying quantities can be produced therefrom, and in two instances authorizing and requiring appellants to operate each and every well therein to its maximum capacity under penalty of forfeiture on short notice, fully appears from the record [R. 166-177]. That the effect of a subsequent statute adopted in 1929, here involved, as sought to be enforced and applied against appellants, is to impair these obligations, is set forth in the allegations of the petition [R. 7 *et seq.*], and is admitted by the demurrer.

Against this impairment the protection of Section 10 of Article I of the United States Constitution and of the Fourteenth Amendment thereto was invoked [R. 24, subd. (e), 178]. Our contention must be upheld under the Federal Constitution unless the state legislation involved, as applied to appellants under the admitted facts, can be sustained as a proper exercise of the police power. That it cannot be, is demonstrated by the argument hereinbefore advanced under *Points D, E* and *F* hereof. We particularly call the court's attention to *Pennsylvania Coal Co. v. Mahon,* 260 U. S. 393, where this court held in a quite similar case that a subsequent statute enacted under the guise of a police regulation, prohibiting the mining of coal under private dwellings or streets in places where the right to mine such coal was reserved and granted in a contract executed prior to the enactment of the statute, went too far and unconstitutionally impaired the obligation of such contract. (See also Cooley's Constitutional Limitations, 8th Ed., Vol. I, p. 583; *Maverick Oil Co. v. Powell,* 237 U. S. 40; *Swiss Oil Corp. v. Powell,* 199 Ky. 863, 251 S. W. 1007.) Certainly this

presents a substantial federal question requiring consideration upon its merits along with the other federal questions presented, and, we believe, requires a reversal of the judgment appealed from. For this additional reason the motions to dismiss or affirm should be denied.

POINT J.

The Statute Involved as Applied to Appellants Denies to Appellants the Equal Protection of the Laws.

There are a number of particulars in which appellants are denied the equal protection of the laws by the statute:

1. It permits other owners or operators in the field to produce gas from their wells in excess of a reasonable proportion to the oil produced therefrom when the excess gas produced is conveniently necessary for the generation of light, heat, power or other industrial purpose. This is in accord with the statements of the lower court. [R. 350-1, 362.] It appears from the admitted facts, the allegations and denials of which were set forth in the petition for writ of prohibition [R. 6]: that appellants have no further available means of any further utilization of the gas which by force of circumstances they release to the air after making several beneficial uses thereof in the production of oil, the manufacture of casing-head gasoline, and for fuel purposes and other purposes upon the various leases in the operations of appellants [R. 7, 12]; that the decrease in the allowed gas production to appellants impairs the ability of appellants to protect themselves against offset wells on large adjoining leaseholds. [R. 14.] It also appears from the answer of appellants in the Superior Court (the allegations and denials of which are re-alleged and incorporated

in the petition for writ of prohibition [R. 6] and are admitted by the demurrer thereto), that the seven major oil companies in California have contracts with various gas companies and others distributing and/or selling natural gas for domestic or commercial purposes, by the terms of which they have secured a market for substantially all of the natural gas produced in Santa Fe Springs field for which there is any demand or market or for which there will be any demand or market for a period of five or ten years, and during the productive life of the natural flow of the wells of the field; that these contracts will provide an outlet for the major portion, or at least a substantial portion, of the natural gas in the wells owned or operated by these companies [R. 130-132]; also that there are one or more offset wells located immediately adjacent to lands upon which appellants have one or more wells penetrating the same oil and gas zones; that none of appellants has been able to secure any such contracts or outlets for natural gas which they are producing and will necessarily have to produce if they are to continue in the business of producing oil, and that they have been unable to find a market or outlet for the resulting dry gas utilized by them in the production of oil and have not even been able to give away such gas, even though they have offered so to do to several of the gas companies distributing and selling natural gas from the field [R. 132-133]; that if all or any of the said major companies having gas contracts are permitted to utilize natural gas produced by them from the field for the purpose of fulfilling such contracts they will be enabled to produce oil in quantities greatly in excess of that which any of appellants can produce and will be enabled to operate their

said wells on immediately adjoining or surrounding premises so as to obtain a material advantage over appellants and to obtain an undue and unjust proportion of the oil in the immediate vicinity of the wells of appellants offsetting the wells of said companies [R. 133-134]; and that appellants are thereby denied the "equal protection" of the laws guaranteed by the Fourteenth Amendment of the Federal Constitution. [R. 135.]

It needs no argument to show that the construction of the statute by the lower court which permits operators of offset wells on adjoining properties to produce more gas than is reasonably necessary in the efficient production of oil in order to supply such excess to gas companies or industries out of the field under contracts which such companies happen to have, and which forces appellants to shut down and kill wells more efficiently operated under one of the lowest gas-oil ratios in the field [R. 8, 12-13], because appellants have no such gas contracts, not only violates the principle of correlative rights but creates an arbitrary and unjust favoritism and discrimination not founded upon any proper classification. The guaranty of the equal protection clause of the Fourteenth Amendment is aimed at undue favor and individual or class privilege on the one hand and hostile and discriminatory operation or inequality on the other. It requires equality of treatment of all persons, even though all enjoy the protection of due process.

> " 'While reasonable classification is permitted, without doing violence to the equal protection of the laws, such classification must be based upon some real and substantial distinction, bearing a reasonable and just relation to the things in respect to which such

classification is imposed; and classification cannot be arbitrarily made without any substantial basis.'"

Truax v. Corrigan, 257 U. S. 312, 337.

That these constitutional requirements are thus violated, see, also: *Cotting v. Godard,* 183 U. S. 79; *McFarland v. American Sugar Ref. Co.,* 241 U. S. 79; *Hayes v. Missouri,* 120 U. S. 68; *Yick Wo v. Hopkins,* 118 U. S. 356, 366-7.

2. The statute also denies appellants the equal protection of the laws, in that section 8d of the act grants to the state supervisor of oil and gas the arbitrary, uncontrolled and unguided power, even though an unreasonable waste of gas be found to exist, to order the discontinuance thereof only "to the extent stated in said order," resulting in favoritism and discrimination as between appellants and their competitors.

Under section 8d of the act, which has been used as an alternative method of enforcing section 8b of the statute against appellants' competitors, the supervisor of oil and gas is authorized, even though he finds an unreasonable waste of natural gas to exist, to order the discontinuance thereof only "to the extent stated in said order" without power in the state to review such order. Section 9 provides for an appeal by any injured operator in the field to the District Board therein referred to whose members are elected by the operators themselves (Sec. 10). While this board has power to modify, affirm or set aside the order of the supervisor of oil and gas its findings are, for all practical purposes, conclusive, for the power of the state under section 14a is merely to enforce obedience of the final order made by the district board. The express

grant of power to the supervisor of oil and gas, even though finding an unreasonable waste of gas to exist, to prohibit the same "only to the extent stated in the order" gives him unguided, uncontrolled and arbitrary power, so that he can freely punish his enemies and favor his friends. Thus the statute is made "a government of men and not of laws." Such a provision clearly violates the equal protection and due process clauses of the Fourteenth Amendment of the United States Constitution. *(Yick Wo v. Hopkins, supra.)*

3. The provision for an appeal to a District Board elected by the operators themselves, and in which the voting power is unequal, being controlled by the *property qualification* of the extent of oil produced by the various operators in the district (Sec. 10), in effect gives a majority in voting power and/or number of the operators power to control the nature and extent of the use to which other operators in the district can make of their property. This is in direct violation of the due process and equal protection clauses of the Fourteenth Amendment. (*Eubank v. Richmond*, 226 U. S. 137.) This court in that case said:

> "* * * The action of the committee is determined by two-thirds of the property owners. In other words, part of the property owners fronting on the block determine the extent of use that other owners shall make of their lots, and against the restriction they are impotent. This we emphasize. One set of owners determines not only the extent of use, but the kind of use which another set of owners may make of their property. In what way is the public safety, convenience, or welfare served by conferring such power? * * *

"We are testing the ordinance by its extreme possibilities to show how in its tendency and instances it enables the convenience or purpose of one set of property owners to control the property right of others, and property determined, as the case may be, for business or residence,—even, it may be, the kind of business or character of residence. *One* person having a two-thirds ownership of a block may have that power against a *number* having a less collective ownership. If it be said that in the instant case there is no such condition presented, we answer that there is control of the property of plaintiff in error by other owners of property, exercised under the ordinance. This, as we have said, is the vice of the ordinance, and makes it, we think, an unreasonable exercise of the police power.

"The case requires no further comment."

266 U. S. 137, 144.

The particular facts showing the injurious operation and application of these provisions so as to deny appellants herein the equal protection of the laws, are set forth in the answer of appellants filed in the Superior Court [R. 164-166], the allegations of which were incorporated and made a part of the petition for writ of prohibition [R. 6] and are admitted to be true by the demurrer thereto. These admitted and uncontradicted facts present a clear case of the violation of the "equal protection" clause of the Fourteenth Amendment.

3. There is another particular in which appellants are injured and directly affected by the provisions of section 8d above referred to, giving discriminatory and arbitrary power to the supervisor of oil and gas thereunder. In that part of the argument showing that the statute is void for uncertainty under the due process clause of the Fourteenth Amendment (Point G hereof),

as well as in the opinion of the lower court [R. 350-1], it appears that the only thing in the statute throwing any light upon what is meant by unreasonable waste of natural gas, which is prohibited by the statute, is contained in section 8d. The lower court relied upon the provisions of that section in construing the statute. The invalidity of the provisions of section 8d respecting the arbitrary power of the supervisor of oil and gas in the order which may be made thereunder, clearly invalidates the entire section, which deals only with the proceedings leading up to the making of such order. (*Williams v. Standard Oil Co.*, 278 U. S. 235.) It therefore follows that for this additional reason appellants are injuriously affected thereby.

4. Section 8d is also invalid, in that it vests *judicial* power in the supervisor of oil and gas of determining the property rights of appellants' competitors and the extent to which the statute shall be enforced as to them, which violates the "due process" clause of the Federal Constitution. Due process of law, where adjudication of property rights of citizens is involved, requires a hearing and determination by a properly constituted *judicial* tribunal. This alone renders section 8d wholly void and invalid, so that the state courts could not properly look to it in construing the statute. In addition, we particularly wish to emphasize, that appellants are denied the equal protection of the laws, because the same statute is enforced against their competitors not only by a non-judicial officer, but also by an officer who is given arbitrary, uncontrolled and unguided power (even though he finds an unreasonable waste of natural gas exists in any of the wells or upon any of the properties of appellants' competitors),

to make an order restricting such unreasonable waste of natural gas only "to the extent stated in said order"; whereas the statute is sought to be enforced against appellants in a court action, not expressly vested with the same arbitrary power. The two methods of enforcing the statute were inserted by design to accomplish just such a result. Whether this court can take notice of this fact or not, the existence of such an inequality, and the discrimination which the record shows has arisen therefrom, clearly present a case in which appellants are denied the "equal protection of the laws" guaranteed to them by the Fourteenth Amendment.

Certainly a substantial federal question as to whether the equal protection clause of the Fourteenth Amendment is violated is presented which should be thoroughly considered on its merits after full argument. For this further reason the motions to dismiss or affirm should be denied.

POINT K.

If Appeal Was Improvidently Sought and Allowed, Then Certiorari Should Be Granted Upon the Papers Whereon the Appeal Was Allowed.

If appeal was improvidently allowed, then, treating the papers whereon the appeal was allowed as a petition for certiorari, the judgment should be reviewed on certiorari. We sincerely believe that the appeal was properly allowed, and that this court's jurisdiction attaches under section 237*a*, U. S. Judicial Code, in that it seeks to review a final judgment in a suit in the highest court in a state in which the decision could be had, where is drawn into

question the validity of a state statute on the ground of its being repugnant to the Constitution of the United States and the decision is in favor of its validity. We believe the foregoing exposition fully demonstrates the substantial character of the federal questions involved and requires a denial of the motions to dismiss or affirm.

If one or more of the federal questions raised on the appeal are such that, standing alone, they could be raised only upon certiorari, this court nevertheless has jurisdiction on the appeal to determine them if the court finds that the record has been properly brought here upon appeal, because involving the constitutionality of the state statute. (*Prudential Ins. Co. v. Cheek,* 259 U. S. 530, 547.)

This court has jurisdiction on certiorari to review a final judgment rendered or passed by the highest court in a state in which a decision could be had where is drawn in question the validity of a statute of any state upon the ground of its being repugnant to the Constitution of the United States, "or where any title, right, privilege or immunity is specially set up or claimed by either party under the Constitution * * * of * * * the United States" (section 237*b*, U. J. Judicial Code). We believe, however, that under the decisions of this court cited herein that appeal, rather than certiorari, is the proper remedy. It is out of an abundance of caution that we present herewith, as a part of the appeal proceedings and an integral part of this brief (printed in the supplement hereto), a formal Motion and Petition for a Writ of Certiorari under section 237 (b) and (c) U. S. Judicial Code.

Conclusion.

We respectfully submit that each of the federal questions presented is within the jurisdiction of this court to review on appeal; that they are substantial, novel, important and far-reaching, and are of general public interest; that they require full and thorough presentation and consideration upon their merits; and that a full examination by this court of the merits of the federal questions presented in the light of the admitted facts, and the previous decisions of this court, will require that the judgment of the lower court be reversed. Therefore the motions to dismiss or affirm should be promptly denied.

As this court said, in *Fairmont Creamery Co. v. Minnesota,* 274 U. S. 1, 9, respecting the public policy of a statute also claimed to be necessary for the welfare of another great industry:

> " 'Happily for all, the fundamental guaranties of the Constitution cannot be freely submerged if and whenever some ostensible justification is advanced and the police power invoked.' "

Respectfuly submitted,

ROBERT B. MURPHEY,
ASA V. CALL,
Counsel for Appellants.

Due service of the within Brief is hereby acknowledged this .....day of April, A. D. 1931.

_____

_____

Attorneys for Appellees.

FILE COPY

FILED
SEP 17 19
CHARLES ELMORE

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1931.

No. 43.

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation, and Ambassador Petroleum Company, a corporation,

Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as One of the Judges Thereof,

Appellees.

APPELLANTS' AND PETITIONERS' BRIEF ON MERITS.

ROBERT B. MURPHEY,
ASA V. CALL,
Counsel for Appellants and Petitioners.

Parker, Stone & Baird Co., Law Printers, Los Angeles.

TOPICAL INDEX.

PAGE

I.

The Opinion of the Court Below 3

II.

Jurisdiction 4

III.

Statement of the Case 4

IV.

Specification of Errors 5

V.

Argument 5

Summary of the Argument 5

Point A. Prohibition is appellants' proper remedy. The state court having treated the federal questions involved as being properly raised by prohibition and having decided them adversely to the asserted federal right, sufficiently establishes the jurisdiction of this court to pass upon the merits of the federal questions presented 8

Point B. The validity of the state statute involved under the Federal Constitution is to be determined by its operation and effect as applied to appellants, and appeal rather than certiorari is the proper remedy 20

Point C. The facts being admitted by demurrer and an inquiry thereof being essential to the enforcement of the federal rights asserted, this court will examine same and draw its own conclusions 20

Point D. Legislation not limited to the regulation of private correlative rights in a common source of supply of oil or gas by preventing waste or other conduct by one or more of them which injuriously affects the correlative rights of others in the common source of supply but which is directed to the curtailment of production itself or to commercial conservation for the benefit of the consuming general public, is repugnant to the "due process" clause of the Fourteenth Amendment 21

PAGE

Point E. The statute as applied to appellants constitutes a taking of appellants' property for a public use without compensation and without due process of law, in violation of the Fourteenth Amendment..... 51

Point F. Under the admitted facts, the extent of the invasion of appellants' property rights is so great, so arbitrary, so oppressive, and so unreasonable, that it goes too far under the police power of the state..... 53

Point G. The statute involved is void for uncertainty and lack of a sufficiently definite standard of conduct under the due process clause of the Fourteenth Amendment..... 67

Point H. The "*prima facie* evidence" clause of the statute violates the "due process" clause of the Fourteenth Amendment 77

Point I. The statute involved, as applied to appellants, unconstitutionally impairs appellants' lease contracts..... 77

Point J. The Statute involved, as applied to appellants, denies to appellants the equal protection of the laws..... 77

Point K. If appeal was improvidently sought and allowed, then certiorari should be granted upon the papers whereon the appeal was allowed..... 78

TABLE OF CASES.

PAGE

Acme Oil Co. v. Williams, 140 Cal. 681 24

Baar v. Smith, 201 Cal. 87, 100-102 18

Bailey v. Alabama, 219 U. S. 244 20

Beidler v. So. Carolina Tax Commission, Advance Opinions, Case No. 2, Oct. Term 1930, 75 L. Ed. 69, 70 13

Black v. Solano Co. (decided by District Court of Appeal May 18, 1931), 65 Cal. App. Dec. 669, 672-673 24

Bodcaw Lumber Co. v. Goode (Ark.), 254 S. W. 345, 29 A. L. R. 518 61

Boone v. Kingsbury, 206 Cal. 148, 181 46

Champlin Refining Co. v. Corporation Commission of the State of Oklahoma, decided August 5, 1931, and quoted in full in the issues of the United States Daily for August 15, 1931, and August 20, 1931, which case is pending in this court (Case No. 1014) 73

Chandler v. Hart, 161 Cal. 405, 418 ..... 60, 61

City of San Bernardino v. Riverside, 186 Cal. 7 40

Cline v. Frink Dairy Co., 274 U. S. 445 75

Commonwealth v. Trent (Ky. 1903), 73 S. W. 390 55

Commonwealth v. Trent, 117 Ky. 34, 4 Ann. Cas. 209, 77 S. W. 390 70

Connally v. General Construction Co., 271 U. S. 385, 70 L. Ed. 322, 328 73

Connolly v. Union Sewer Pipe Co., 184 U. S. 540 77

Enterprise Irrigation Dist. v. Farmers Mut. Canal Co., 243 U. S. 157, 164 12

Eubank v. Richmond, 226 U. S. 137 77

Ex parte Kelso, 147 Cal. 609 41

Favorite v. Superior Court of Riverside Co., 181 Cal. 261, 264 14

Geer v. Connecticut, 161 U. S. 519, 525 57

Hague v. Wheeler, 157 Pa. St. 324 30

Hamilton Brown Shoe Co. v. Wolf Bros. & Co., 240 U. S. 482 .. 55

PAGE

Hathorn v. Natural Carbonic Gas Co., 194 N. Y. 326, 87 N. E. 504 31
Havemeyer v. Superior Court, 84 Cal. 327, 373 15
Henderson v. Mayor of New York, 92 U. S. 259, 268 20
Herminghaus v. Southern California Edison Company, 200 Cal. 81 ..... 33, 37
Hevren v. Reed, 126 Cal. 219, 221 14
Hewitt v. Board of Medical Examiners, 148 Cal. 590 75
Hill v. Smith, 260 U. S. 592, 594 8
Home Ins. Co. v. Dick, 281 U. S. 397, 407 8

In re Peppers, 189 Cal. 682 76

Jacobsen v. Superior Court, 192 Cal. 319 16

Kidwell v. General Petroleum Co. (Supreme Court of Cal., June 1, 1931), 300 Pac. 1 24
Kirby v. Superior Court, 68 Cal. 604, 606 14

Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61, 73 32
Long v. Superior Court, 102 Cal. 449, 453, 455 18

Marrs v. City of Oxford, 32 Fed. (2d) 134 54
Moore v. Small, 17 Cal. 199 50
Mountain Timber Co. v. Washington, 243 U. S. 219, 237 20

North Carolina R. Co. v. Zachary, 232 U. S. 248, 257 8

Ohio Oil Company v. Indiana, 177 U. S. 190 ..... 22, 24, 27, 29, 32, 57, 58, 67
Osborn v. Arkansas etc. Oil & Gas Co., 103 Ark. 175 61
Oxford Oil Company v. Atlantic Oil Producing Co., 22 Fed. (2d) 597 ..... 55, 68

Palmer v. Railroad Commission, 167 Cal. 163 40
Pennsylvania Coal Co. v. Mahon, 260 U. S. 393, 67 L. Ed. 322 .. 43
People v. Associated Oil Co. 24, 29, 40, 45, 60, 67
Postal Tel. Cable Co. v. Newport, 247 U. S. 464 13

Quinton Relief etc. Co. v. Corporation Commissioner of Oklahoma, 224 Pac. 156, 101 Okla. 164 70

PAGE

Regan v. Farmers Loan & Trust Co., 154 U. S. 362, 401-402..... 52
Rogers v. Hennepin County, 240 U. S. 184, 188.....8, 9

Small v. American Sugar Refining Company, 267 U. S. 233..... 73
Smith v. Cahoon (decided May 25, 1931), 283 U. S....., 75 L. Ed. 812.....10, 77
Standard Chemical etc. Corp. v. Waugh, 231 N. Y. 51, 131 N. E. 566..... 75
State v. Carson Carbon Co., 162 La. 781, 111 So. 162.....56, 69
State v. Lebow (Kans.), 280 Pac. 773..... 68
State v. Thrift Oil & Gas Co., 162 La. 165, 110 So. 188..... 57
Stone v. City of Los Angeles, 65 Cal. App. Dec. 688..... 24

Terrace v. Thompson, 263 U. S. 197..... 62
Townsend v. State, 147 Ind. 624..... 30
Truax v. Corrigan, 257 U. S. 312..... 13
Tyson & Bro. etc. v. Banton, 273 U. S. 418, 71 L. Ed. 718..... 48

United States v. Carver, 260 U. S. 482..... 55
United States v. Reynolds, 235 U. S. 133, 148-149..... 20

Walls v. Midland Carbon Co., 254 U. S. 300.....31, 57, 68
Washington *ex rel.* Seattle Title Trust Co. v. Roberge, 278 U. S. 116, 121-122 .....53, 77
West v. Kansas Natural Gas Co., 221 U. S. 229, 254-255..... .....24, 27, 31, 65
Williams v. Standard Oil Company, 278 U. S. 235..... 46
Wolff Packing Co. v. Court of Industrial Relations, 262 U. S. 522, 67 L. Ed. 1103..... 49

AUTHORITIES CITED.

PAGE

Mills and Willingham on Oil and Gas, pp. 18 and 26..... 61

Rule XXVI, Section 3, of the Rules of the Supreme Court and District Courts of Appeal of California..... 15

Statutes of California (Secs. 1102-1105, 1089, 1091, Cal. Code of Civil Procedure)..... 15

Water Commission Act of 1913, Sections 11 and 42..... 38

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1930.

No. 852.

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation, and Ambassador Petroleum Company, a corporation,

Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as One of the Judges Thereof,

Appellees.

APPELLANTS' AND PETITIONERS' BRIEF ON MERITS.

I.

The Opinion of the Court Below.

The opinion of the District Court of Appeal, Second Appellate District, Division Two, of the state of California, has not yet been officially reported. However, the opinion was rendered under date of November 29, 1930,

is unofficially reported in 63 Cal. App. Dec. 1175, and a copy of the opinion appears in the printed record* [R. 200].

II.

Jurisdiction.

A concise statement of the grounds on which the jurisdiction of this court is invoked, embodying all that is required to be set forth in the statement described in paragraph 1 of Rule XII of this court, will be found in the printed "Statement as to Jurisdiction on Appeal" heretofore filed by appellants, and in "Appellants' Brief in Opposition to Motion to Dismiss or Affirm, Petition for Writ of Certiorari" and the supplement thereto. Reference thereto is hereby made in order to avoid repetition.

III.

Statement of the Case.

A full statement of the case has been given under heading C in our previous "Statement as to Jurisdiction on Appeal" and at pages 6-19 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm," and in the interest of brevity reference is hereby made thereto without repetition here. While the references therein were to the *typewritten* transcript (the record not having then been printed), such references are believed adequate because the pages of the typewritten record are shown by folio number in the lefthand margin of each of the pages of the *printed* record, and the index to the printed record also gives the page reference to the original typewritten record.

---

*All references herein are to the printed record.

IV.

Specification of Errors.

Appellants and petitioners hereby adopt their assignment of errors [R. 244] as their specification of the assigned errors intended to be urged, reference to which is hereby made without repetition, in the interest of brevity. Appellants adopted their assignment of errors as their statement of points to be relied upon filed under the requirement of paragraph 9 of Rule XIII [R. 267], but, as stated therein, same may be more logically restated under the headings or points set forth therein [R. 268] which are set out herein in more condensed form in the "Summary of the Argument."

V.

ARGUMENT.

Summary of the Argument.

Point A.

PROHIBITION IS APPELLANTS' PROPER REMEDY. THE STATE COURT HAVING TREATED THE FEDERAL QUESTIONS INVOLVED AS BEING PROPERLY RAISED BY PROHIBITION AND HAVING DECIDED THEM ADVERSELY TO THE ASSERTED FEDERAL RIGHT, SUFFICIENTLY ESTABLISHES THE JURISDICTION OF THIS COURT TO PASS UPON THE MERITS OF THE FEDERAL QUESTIONS PRESENTED.

Point B.

THE VALIDITY OF THE STATE STATUTE INVOLVED UNDER THE FEDERAL CONSTITUTION IS TO BE DETERMINED BY ITS OPERATION AND EFFECT AS APPLIED TO APPELLANTS, AND APPEAL RATHER THAN CERTIORARI IS THE PROPER REMEDY.

Point C.

THE FACTS BEING ADMITTED BY DEMURRER AND AN INQUIRY THEREOF BEING ESSENTIAL TO THE ENFORCEMENT OF THE FEDERAL RIGHTS ASSERTED, THIS COURT WILL EXAMINE SAME AND DRAW ITS OWN CONCLUSIONS.

Point D.

LEGISLATION NOT LIMITED TO THE REGULATION OF PRIVATE CORRELATIVE RIGHTS IN A COMMON SOURCE OF SUPPLY OF OIL OR GAS BY PREVENTING WASTE OR OTHER CONDUCT BY ONE OR MORE OF THEM WHICH INJURIOUSLY AFFECTS THE CORRELATIVE RIGHTS OF OTHERS IN THE COMMON SOURCE OF SUPPLY BUT WHICH IS DIRECTED TO THE CURTAILMENT OF PRODUCTION ITSELF OR TO COMMERCIAL CONSERVATION FOR THE BENEFIT OF THE CONSUMING GENERAL PUBLIC, IS REPUGNANT TO THE "DUE PROCESS" CLAUSE OF THE FOURTEENTH AMENDMENT.

Point E.

THE STATUTE AS APPLIED TO APPELLANTS CONSTITUTES A TAKING OF APPELLANTS' PROPERTY FOR A PUBLIC USE WITHOUT COMPENSATION AND WITHOUT DUE PROCESS OF LAW, IN VIOLATION OF THE FOURTEENTH AMENDMENT.

Point F.

UNDER THE ADMITTED FACTS, THE EXTENT OF THE INVASION OF APPELLANTS' PROPERTY RIGHTS IS SO GREAT, SO ARBITRARY, SO OPPRESSIVE, AND SO UNREASONABLE, THAT IT GOES TOO FAR UNDER THE POLICE POWER OF THE STATE.

Point G.

THE STATUTE INVOLVED IS VOID FOR UNCERTAINTY AND LACK OF A SUFFICIENTLY DEFINITE STANDARD OF CONDUCT UNDER THE DUE PROCESS CLAUSE OF THE FOURTEENTH AMENDMENT.

POINT H.

THE "PRIMA FACIE EVIDENCE" CLAUSE OF THE STATUTE VIOLATES THE "DUE PROCESS" CLAUSE OF THE FOURTEENTH AMENDMENT.

POINT I.

THE STATUTE INVOLVED, AS APPLIED TO APPELLANTS, UNCONSTITUTIONALLY IMPAIRS APPELLANTS' LEASE CONTRACTS.

POINT J.

THE STATUTE INVOLVED, AS APPLIED TO APPELLANTS, DENIES TO APPELLANTS THE EQUAL PROTECTION OF THE LAWS.

POINT K.

IF APPEAL WAS IMPROVIDENTLY SOUGHT AND ALLOWED, THEN CERTIORARI SHOULD BE GRANTED UPON THE PAPERS WHEREON THE APPEAL WAS ALLOWED.

Appellants' Brief in Opposition to Motion to Dismiss or Affirm Is Adopted as Appellants' Brief on the Merits, With the Additions Herein Made.

Since the main, if not the sole, ground of the motion to dismiss or affirm, is the claim that no substantial federal question is presented, and this involved a discussion of the merits of the federal questions presented, it follows that each of the above points has already been presented and argued by appellants at some length in "Appellants' Brief in Opposition to Motion to Dismiss or Affirm," and also in appellants' "Statement as to Jurisdiction on Appeal," reference to both of which is hereby made. For the sake of brevity, what has there been said will not be repeated here. We desire, however, to add slightly to the argument and citation of authorities therein contained, and to reply to the attempted answer thereto contained in the "Statement of Appellees as to Jurisdiction on Appeal."

POINT A.

Prohibition Is Appellants' Proper Remedy. The State Court, Having Treated the Federal Questions Involved as Being Properly Raised by Prohibition, and Having Decided Them Adversely to the Asserted Federal Right, Sufficiently Establishes the Jurisdiction of This Court to Pass Upon the Merits of the Federal Questions Presented.

In addition to the argument contained at pages 21, *et seq.* of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm," under an identical heading, attention is called to the admission contained in the "Statement of Appellees as to Jurisdiction on Appeal," page 6, to the effect that the petition for writ of prohibition in the state court raised two federal questions which the District Court of Appeal assumed were properly before it, the first going "to the power of the state to prohibit the waste of natural gas, and the second to the degree of certainty required in the state statute to meet the requirements of due process of law." While we do not agree that this statement by appellees is an accurate or complete statement of the federal questions involved, the admission of appellees that the record in the state court properly presented such federal questions and that the lower court assumed that such federal questions were involved, and decided them adversely to the claimed repugnancy to the Federal Constitution, makes it the clear duty of this court to pass upon the merits of the federal questions presented.

North Carolina R. Co. v. Zachary, 232 U. S. 248, 257;
Rogers v. Hennepin County, 240 U. S. 184, 188;
Hill v. Smith, 260 U. S. 592, 594;
Home Ins. Co. v. Dick, 281 U. S. 397, 407.

At page 260 of the record appears a stipulation that each of the federal questions set forth in our assignment of errors "were duly, regularly, properly and timely raised in the prohibition proceedings."

Under the rule of these cases appellees' arguments to the effect that appellants had an adequate remedy by appeal with the possible aid of a supersedeas, and that prohibition was not the proper remedy, and to the effect that the federal questions presented did not affect the jurisdiction of the lower court to enforce the statute or to make or enforce its order attempting to apply the state statute against appellants, have no place here. The state court, which alone determines local questions of procedure, did not deny relief because a writ of prohibition was sought or because it considered that there was a plain, speedy and adequate remedy by appeal and a supersedeas, or because it did not consider that the federal questions presented did not go to the jurisdiction of the Superior Court to enforce the statute or to make or enforce its order attempting to apply the state statute against appellants. The highest state court in which a decision in the suit could be had, said nothing whatever as to the form of the remedy or as to the right of appellants to proceed by writ of prohibition or as to the effect of the Superior Court being a court of general jurisdiction, but considered that the federal questions presented did go to the jurisdiction of the Superior Court to enforce the statute or to make or enforce its order attempting to apply the state statute against appellants, and decided the case solely on the merits of the federal questions presented, and the state statute involved and the order attempting to enforce the

state statute against appellants were sustained as not repugnant to the Federal Constitution in the particulars claimed by appellants. This establishes the jurisdiction of this court, for as stated by this court in *Rogers v. Hennepin County, supra:*

> "It is well settled that where the state court does not decide against the plaintiff in error upon an independent state ground, but, deeming the Federal question to be before it, actually entertains it and decides it adversely to the Federal right asserted, this court has jurisdiction to review the judgment, assuming it to be a final judgment, as it is here." (Citing many prior decisions of this court)—240 U. S. 184, 188-189.

It is thoroughly established by the many cases cited in support of the above statement, that it is enough that the state court holds that the federal questions are before it according to the state practice and proceeds to determine them. Furthermore, even if this did not conclusively settle the jurisdiction of this court to review the state decision on the federal questions presented, the rule is well established that prohibition is a proper method of testing the constitutionality of a state statute. (See cases cited at pages 23-27 of our former brief, and *Smith v. Cahoon*, 283 U. S....., decided May 25, 1931, 75 L. Ed. 812.)

Appellees, seeking to invoke the rule of this court that when the decision of the state court rests upon an independent or non-federal ground adequate to support it, this court has no jurisdiction,—refer (page 18 of "Statement of Appellees as to Jurisdiction on Appeal") to what appellees call the third point raised and decided by the lower

court: "that of the evidence to sustain the findings essential to jurisdiction under state practice," and cites the following extract from the opinion of the District Court of Appeal as deciding this point:

> "Another answer to this argument of petitioners is that having determined that the court has the jurisdiction to determine what is an unreasonable waste, we cannot interfere by the writ of prohibition to deprive its judgment of effect. And we here direct attention to the determination of the respondent court that 'there appears to be an unreasonable waste of natural gas in the Santa Fe Oil Field,' and 'that the evidence available . . . shows that the unreasonable waste of natural gas in said field may be substantially reduced and that the equities of all parties may be fairly conserved by a preliminary injunction which will limit the waste of gas by restricting the production thereof to a quantity reasonably in excess of the present outlets for beneficial use above ground, etc., etc.' It does not appear from the facts presented to us that in so far as the particular case before us is concerned the court exceeded its jurisdiction in finding as we have already quoted." [Opinion, R. 362-363.]

It is obvious, however, from a mere reading of the first sentence of the above quotation that the statement of the lower court that the Superior Court "has the jurisdiction to determine what is an unreasonable waste" is based upon its prior determination in the opinion (a) that the state statute is not void for uncertainty under the due process clause of the Fourteenth Amendment, and (b) that the statute as enforced against appellants does not constitute a taking of appellants' property without due process of

law, and ... upon its determination of the other federal questions involved. All of these federal questions are thus inseparably interwoven with, and are basis for, the lower court's statement that the Superior Court had jurisdiction to determine that it is an "unreasonable waste of natural gas." As this court said in *Enterprise Irrigation Dist. v. Farmers Mut. Canal Co.*, 243 U. S. 157, 164:

> "... where the non-Federal ground is so interwoven with the other [federal ground] as not to be dependent matter, or is not of sufficient breadth to sustain the judgment without any decision of the other [federal question], our jurisdiction is plain."

See also cases cited at page 23 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm."

Furthermore, the alleged finding referred to by the District Court of Appeal as being a determination by the Superior Court that appellants are unreasonably wasting natural gas, even a casual examination discloses, is not a finding that appellants are unreasonably wasting natural gas or a finding that any of the oil wells of appellants is unreasonably wasting natural gas. It is merely a finding of unreasonable waste of gas *in the field*. This is demonstrated by what we have already said at pages 52-54 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm" where it is also shown that even if there had been a finding by the Superior Court that appellants are unreasonably wasting natural gas there would be *no factual basis* therefor under the admitted facts which were established by undisputed evidence in the Superior Court [R. 3-8].

Where the undisputed facts upon the basis of which a federal right is asserted are set out in the pleadings and are admitted by demurrer, this court is not bound by the conclusions of the highest court in the state as to their effect but will analyze the admitted facts and draw its own conclusions as to their effect (Frank v. Corrigan, 257 U. S. 312 and cases therein cited), particularly where such inquiry is essential to the enforcement of a right suitably asserted under the Federal Constitution. (Beidler v. So. Carolina Tax Commission, Advance Opinions, Case No. 2, Oct. Term 1930, 75 L. ed. 69, 70, and cases there cited; Postal Tel. Cable Co. v. Newport, 247 U. S. 464.)

Furthermore, the provisions of the preliminary injunction referred to in the above quoted extract from the opinion of the District Court of Appeal were made without any consideration of or attempt to regulate the private correlative rights of the surface owners by preventing waste or other conduct by one or more of them injuriously affecting the operations of other surface owners, but in disregard and in violation thereof, were admittedly inserted solely for the purpose of conserving the natural gas, of which appellants were thereby deprived, for the future use and benefit of the general public as consumers of gas for light, heat and power [R. 14], and this is also shown by the very face of the order itself, by the recitals therein that the gas production allowed by its terms is limited to the present market demands or outlets above ground for gas from the field for light, heat and fuel [R. 180-181] notwithstanding that it deprived appellants of sufficient gas to produce the oil it was admittedly then producing under efficient methods which

did not injuriously affect the operations of others in the field [R. 7]. See more extended discussion at pages 46-54 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm." Whether this can be done without violation of the Fourteenth Amendment is one of the federal questions presented. Hence, the so-called third point in the opinion of the District Court of Appeal necessarily involves a federal question, which appellants are entitled to have this court consider on its merits.

The claim at page 18 of "Statement of Appellees as to Jurisdiction on Appeal" that the uncontradicted and admitted facts set forth at pages 9-18 of appellants' Statement are largely the controverted facts constituting the material issues raised by the pleadings in the Superior Court, is without foundation. Paragraphs 7 and 8 [R. 3-8] of the Petition for Writ of Prohibition contain allegations of certain facts which it is alleged appeared *"from the uncontradicted evidence introduced upon the hearing"* of the preliminary injunction in the Superior Court. The demurrer [R. 199] admits all of the material facts alleged in the petition for the writ of prohibition, including the allegations that the facts alleged in paragraphs 7 and 8 appeared from the uncontradicted evidence in the Superior Court.

Favorite v. Superior Court of Riverside Co., 181 Cal. 261, 264;

Hevren v. Reed, 126 Cal. 219, 221;

Kirby v. Superior Court, 68 Cal. 604, 606.

The claim of appellees (p. 19 of Appellees' Statement) that appellants could not in a prohibition proceeding in

which the appellee Superior Court is the adverse party raise any issues of fact, and also the claim that prohibition is not the proper remedy where facts not judicially noticeable must be alleged and found in order to establish that the court was acting without or in excess of its jurisdiction, not only have no place here under the decisions already cited, but will not bear analysis. While under the state practice the writ of prohibition was necessarily addressed to the appellee Superior Court, the statutes of California (Secs. 1102-1105, 1089, 1091, Cal. Code of Civil Procedure) expressly contemplate that on the return day of the alternative writ of prohibition either an *answer* to the verified petition or a *demurrer* thereto, or *both, may be filed and for a trial of all issues* of fact raised by the answer where an answer is filed. Rule XXVI, section 3, of the rules of the Supreme Court and District Courts of Appeal of California provides:

> "Sec. 3. Upon the return day of the alternative writ the respondent may make return, either by demurrer or by answer, or by both. If the return be by demurrer alone, and the demurrer is not sustained, the writ may be ordered to issue without leave to answer over." (204 Cal. LVII.)

While the appellee Superior Court is the nominal adverse party the local practice is to have attorneys for the adverse party litigant in the suit below appear as attorneys on behalf of the Superior Court (*Havemeyer v. Superior Court*, 84 Cal. 327, 373), and this was done in the instant case. As stated by the court in the case last cited, the attorneys for the plaintiffs in the Superior Court have, as the attorneys for the appellee Superior

Court, presented every issue of fact and of law "which could have been made in behalf of the state if it had been a formal party to the proceedings, which, as we have seen, the rule does not require." (84 Cal. 373.)

From the foregoing statutes, rules of court and local decisions and the many decisions cited at page 23 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm," it is clear that said claims of appellees are without foundation.

Of course, where the constitutionality of a statute is called in question by application for writ of prohibition, upon the ground that it is void upon its face, as for instance for uncertainty, the court need not look further than to the statute itself and to matters of which it can taken judicial knowledge. However, where a court is proceeding in violation of the express or implied mandate of a constitution or grants to or takes from a party rights which a constitution or statute expressly or impliedly provides shall not be granted or taken away, or the operation or effect of the statute as applied violates a right under the Federal Constitution, the facts must be alleged in the petition for prohibition, for only in this way can it be established that the court is violating the Federal Constitution or exceeding its jurisdiction (see California cases cited at pages 23-29 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm). These cases establish that such action by a court constitutes not just a mere error in the exercise of jurisdiction but an act in excess of its jurisdiction. For instance, in *Jacobsen v. Superior Court,* 192 Cal. 319, the court stated that since the respondent Superior Court filed only

a demurrer to the petition for writ of prohibition, it thereby admitted the facts set forth in the petition to be true, and held that although the facts so alleged and admitted showed that the Superior Court, a court of general jurisdiction, had jurisdiction of the parties, and to grant injunctions, yet under the admitted facts so alleged it had no jurisdiction to *make* or to *enforce* the *preliminary injunction* involved in that *prohibition* proceeding, in that the effect thereof was to take petitioners' property for a public use without just compensation. It was also claimed in that case that "the trial court, a court of equity, having had jurisdiction to make said order, it had jurisdiction to err in making it and hence that prohibition will not lie" (p. 330), but the court held that

> "* * * no court in any other action or proceeding than an action in eminent domain has jurisdiction to order the taking or damage of private property for a public use. * * * Such an attempt on the part of the superior court amounts to more than mere error. As was well said by this court in the case of McClatchy v. Superior Court, 119 Cal. 413 [39 L. R. A. 691, 51 Pac. 696], in which another fundamental right of the citizen was attempted to be denied him and in which it was urged that the action of the court in so doing was merely error and hence not reviewable upon *certiorari:* 'It was error certainly but was more than that; it was a transgression of a fundamental right guaranteed to every citizen charged with an offense or whose property is sought to be taken, of being heard before he is condemned to suffer injury. Any departure from those recognized and established requirements of law, however close the apparent adherence to mere form in

> method of procedure, which has the effect to deprive one of a constitutional right is as much an excess of jurisdiction as where there exists an inceptive lack of power. "The substance and not the shadow determines the validity of the exercise of the power." (Citing Postal Tel. etc. Co. v. Adams, 155 U. S. 689, 698 [39 L. Ed. 311, 15 Sup. Ct. Rep. 268, 360, see, also, Rose's U. S. Notes].) The facts in this case being admitted and the respondent herein having conceded that if its entry and operations upon the lands of the petitioner amounts to a taking and damaging thereof within the meaning of section 14 of article I of the constitution the order of the court assailed herein would be violative of that constitutional provision, it would seem that the writ of prohibition is a proper and appropriate remedy where, as in this case, the petitioners have no plain, speedy, or adequate remedy in the ordinary course of law." (192 Cal. 319, 331-332.)

The opinion in that case alone answers all of the argument advanced by appellees on this phase of this case. It and *Baar v. Smith,* 201 Cal. 87, 100-102, and *Long v. Superior Court,* 102 Cal. 449, 453, 455, conclusively answer the claims of appellees (page 22 of Appellees' Statement) that a writ of prohibition will not issue against "a court of equity in a cause arising in equity where it had jurisdiction of the subject matter and of the parties * * * because * * * the Chancellor enjoined too much." However, the instant case is not a cause arising in equity, but is rather one in which the authority of the court and the cause of action, if any, is statutory, and arises under the state statute involved.

The suggestion is made by appellees (p. 25, Appellees' Statement) that if this court should reverse the California court and order a writ of prohibition to issue to the appellee court it would thereby prevent a trial on the merits. However, if the state statute involved is held void for uncertainty and lack of a sufficiently definite standard of conduct under the due process clause of the Fourteenth Amendment of the Federal Constitution (Point G), or because it violates any of the other constitutional guarantees (Points H, I and J) this court should reverse the decision of the state court and order the writ of prohibition to be issued as prayed for. If this court, however, merely holds that the operation and effect of the statute as applied to appellants in the preliminary injunction constitutes a taking of appellants' property for a public use without compensation and without due process of law, in violation of the Fourteenth Amendment, or that the extent of the invasion of appellants' property rights is so great, arbitrary, oppressive and unreasonable that it goes too far under the police power of the state, then the Superior Court should be prohibited only from enforcing the preliminary injunction against appellants, or taking any further steps or proceedings inconsistent with the opinion of this court. In short, there is nothing strange or anomalous about this case, as suggested by appellees, which will prevent this court from framing an appropriate order.

POINT B.

The Validity of the State Statute Involved Under the Federal Constitution Is to Be Determined by Its Operation and Effect as Applied to Appellants, and Appeal Rather Than Certiorari Is the Proper Remedy.

We have nothing to add to what is said under this point at page 28 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm," except the following cases on the proposition that in passing upon constitutional questions this court has regard to substance and not to mere matters of form, and, in accordance with familiar principles, the constitutionality of a statute must be tested by its operation and effect as applied to appellants as shown by the record, as well as by the question whether or not on its face it is repugnant to the Federal Constitution.

Henderson v. Mayor of New York, 92 U. S. 259, 268;

Bailey v. Alabama, 219 U. S. 244;

United States v. Reynolds, 235 U. S. 133, 148-149;

Mountain Timber Co. v. Washington, 243 U. S. 219, 237.

POINT C.

The Facts Being Admitted by Demurrer and an Inquiry Thereof Being Essential to the Enforcement of the Federal Rights Asserted, This Court Will Examine Same and Draw Its Own Conclusions.

Nothing further need be added to the argument and citations contained at pages 29-30 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm."

POINT D.

Legislation Not Limited to the Regulation of Private Correlative Rights in a Common Source of Supply of Oil or Gas by Preventing Waste or Other Conduct by One or More of Them Which Injuriously Affects the Correlative Rights of Others in the Common Source of Supply but Which Is Directed to the Curtailment of Production Itself or to Commercial Conservation for the Benefit of the Consuming General Public, Is Repugnant to the "Due Process" Clause of the Fourteenth Amendment.

This proposition is fully discussed and shown to be supported by the previous decisions of this court at pages 30-46 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm," reference to which is hereby made without repetition in the interest of brevity. We wish to add a little additional argument and citations and to answer the claims made by appellees (pp. 6-8, Appellees' Statement), wherein it is urged that "the power of the state to prohibit the waste of natural gas has been explicitly decided by this court." This statement of appellees begs the question. This statement is not inconsistent with the fact that the power of the state to prohibit the waste of natural gas is limited to the prevention of waste or other conduct by one or more operators which injuriously affects the correlative rights of other operators in a common source of supply. When, as here, legislation on the subject in its operation and effect as applied to appellants is directed to the curtailment of production itself not injuriously affecting the rights or operations of others, or is directed to enforced commercial conserva-

tion of privately owned natural gas for the benefit of the consuming general public, or is directed to declaring that to be a waste which is not in fact waste but which is beneficially used for its primary and most valuable function of producing oil under conditions not injuriously affecting the rights of other operators in the field, it is repugnant to the due process clause of the Fourteenth Amendment of the Federal Constitution. (See cases cited at pages 30-60 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm.")

It makes no difference whether the owner or lessee of land containing gas and oil beneath the surface is the owner of the oil and gas beneath his land in place or whether his ownership is qualified by the correlative rights of other surface owners, and does not become absolute until the surface owner or lessee reduces the same to possession, or whether each surface owner has a mere right, in common with other surface owners, to reduce it to possession by operations on his own land. The practical result is the same, for in any event all of the surface owners in the field collectively own the underlying oil and gas deposits and *the public* has no interest whatever therein. This court, in *Ohio Oil Company v. Indiana,* 177 U. S. 190, after pointing out that things *ferae naturae* are public property, private ownership of which every person in the state is endowed with a power of acquiring by reducing same to possession, said:

> "* * * *In the case of natural gas and oil no such right exists in the public. It is vested only in the owners in fee of the surface of the earth within the area of the gas field.* This difference points at

> once to the distinction between the power which the lawmaker may exercise as to the two. In the one, as the public are the owners, every one may be absolutely prevented from seeking to reduce to possession. No devesting of private property under such a condition can be conceived, because the public are the owners, and the enacting by the state of a law as to the public ownership is but the discharge of the governmental trust resting in the state as to property of that character. *Geer v. Connecticut,* 161 U. S. 519, 525, 40 L. ed. 793, 795, 16 Sup. Ct. Rep. 600. On the other hand, as to gas and oil the surface proprietors within the gas field all have the right to reduce to possession the gas and oil beneath. *They could not be absolutely deprived of this right which belongs to them without a taking of private property."*

The right of the surface owners in the field to reduce oil and gas to possession is therefore a valuable property right which is protected by the Fourteenth Amendment, even in states like Indiana where the minority rule of property exists that there is no ownership or title in the surface owner in the underlying gas and oil until the same have been reduced to possession. At pages 47-48 of our former brief we have shown, by an unbroken line of cases, that the majority rule prevails in California, that oil and gas in place are minerals and are part of the land and belong to the owner of the land as long as they are on it or in it or subject to his control; that the underlying oil and gas can be sold or reserved in place by the surface owner, and instruments of sale thereof in place are required to be executed with the formalities of a conveyance of real estate and create a corporeal rather than an incor-

poreal interest, and may operate to sever the mineral estate from the surface estate (see pages 48-47 of our former brief). The quotation from *Acme Oil Co. v. William*s, 140 Cal. 681, by the Supreme Court in *People v. Associated Oil Co.* (pages 28-29, Supplement to Brief of Appellees on Motion to Dismiss or Affirm), to the effect that the ownership of oil and gas in the property of anybody [illegible] is not inconsistent with the view because the statute contemplates that the right to take the oil or gas must be obtained from the surface owner. It is well established that a person taking oil and gas without permission of the surface owner of the land in which it is found is liable in damages to such owner thereof. In addition to the cases cited in our former brief, see the following recent California cases:

> *Black v. Solano Co.* (decided by District Court of Appeal May 18, 1931), 65 Cal. App. Dec. 669, 672-673;
>
> *Stone v. City of Los Angeles,* 65 Cal. App. Dec. 688;
>
> *Kidwell v. General Petroleum Co.* (Supreme Court of Cal., June 1, 1931), 300 Pac. 1.

In *West v. Kansas Natural Gas Co.,* 221 U. S. 229, 254-255, this court, in referring to the *Ohio Oil Company case,* said:

> "The case, therefore, is an authority against, not in support of, the contention of the appellant in the case at bar [viz., the right of the state to conserve natural resources "for the use of the inhabitants of the state, present and future"].

"The statute of Indiana was directed against waste of the gas, and was sustained because it protected the use of all the surface owners against the waste of any. The statute was one of true conservation, securing the rights of property, not impairing them. Its purpose was to secure to the common owners of the gas a proportionate acquisition of it—a reduction to possession of property—not to take away any right of use or disposition after it had been reduced to possession. It was sustained because such was its purpose, and we said that the surface owners of the soil, owners of the gas as well, could not be deprived of the right to reduce it to possession without the taking of private property. It surely cannot need argument to show that if they could not be deprived of the right to reduce the gas to possession, they could not be deprived of any right which attached to it when in possession.

"The Oklahoma statute far transcends the Indiana statute. It does what this court took pains to show that the Indiana statute did not do. It does not protect the rights of all surface owners against the abuses of any. It does not alone regulate the right of the reduction to possession of the gas, but, when the right is exercised, when the gas becomes property, takes from it the attributes of property,—the right to dispose of it; indeed, selects its market, to reserve it for future purchasers and use within the state, on the ground that the welfare of the state will thereby be subserved. The results of the contention repel its acceptance. Gas, when reduced to possession, is a commodity; it belongs to the owner of the land; and, when reduced to possession, is his individual property, subject to sale by him, and may be a subject of intrastate commerce and interstate commerce."

See, also, *Haskell v. Natural Gas Co.*, 172 Fed. 563, holding that gas which has been reduced to possession by a surface owner is the personal property of such surface owner and is not a product which a state may conserve and preserve by law as a thing in which the people of the state have a common interest, but is an absolute property right of which the owner cannot be deprived without just compensation.

Since, under the admitted facts of this case, each of the wells of petitioners is being operated at its optimum gas-oil ratio, which is amongst the lowest in the field, and such wells are so efficiently operated that they do not injuriously affect the operations of other operators in the field [R. 4, 7], the only theory under which any claim is made by opposing counsel that appellants are unreasonably wasting natural gas is that the amount of gas which appellants permit to escape into the air, as compared to the amount of gas produced by appellants, is too large. It is an open question whether the amount of gas escaping to the air is a factor in determining what constitutes an unreasonable waste of gas. (See pp.61-71 of our former brief.) However, the gas so permitted to escape is gas which has been reduced to possession by appellants in their pipelines and thereafter in their casinghead gasoline refinery, so that it was and is the absolute personal property of appellants. Furthermore, it admittedly was produced efficiently and so as not to injuriously affect the rights of other operators and, before being permitted to escape, is utilized three times: first, in the efficient production of oil by utilizing the lifting force of gas in the production of oil; second, in the manufacture of casinghead gasoline; and third, for

field uses, for light and fuel and the marketing of such of same as can be sold. What is left after this manifold utilization in the production of wealth of great value cannot be sold or even given away and so is necessarily permitted to escape into the air as a valueless by-product. Yet the effect of the statute as construed and applied to [R. 7.] Yet the effect of the statute as construed and applied to appellants is to deprive appellants of the use of such gas for such purposes, solely for the purpose of reserving the same in the ground for the future use and benefit of, until the same can be used by, the general public as consumers, but without any compensation to appellants for the tremendous loss resulting therefrom. [R. 8, 14.]

That the basis of the legislative power of regulation of the production of oil and gas is the protection of the private correlative rights of the surface owners by preventing waste or other conduct by one or more of them injuriously affecting the rights of others of them, and does not extend to depriving the surface owners of oil or gas and conserving the same for the use and benefit of the general public, is shown not only by the foregoing extract from *West v. Kansas Natural Gas Co.,* but is conclusively demonstrated by the following extract from the opinion of this court in the *Ohio Oil Company* case:

> "But there is a coequal right in them all to take from a common source of supply the two substances which in the nature of things are united, though separate. It follows from the essence of their right and from the situation of the things as to which it can be exerted, that the use by one of his power to seek to convert a part of the common fund to actual

possession may result in an undue proportion being attributed to one of the possessors of the right to the detriment of the others, or by waste by one or more to the annihilation of the rights of the remainder. *Hence it is that the legislative power,* from the peculiar nature of the right and the objects upon which it is to be exerted, *can be manifested for the purpose of protecting all the collective owners, by securing a just distribution, to arise from the enjoyment, by them, of their privilege to reduce to possession, and to reach the like end by preventing waste.* * * * Viewed, then, as a statute *to protect or to prevent the waste of the common property of the surface owners,* the law of the state of Indiana which is here attacked because it is asserted that it devested private property without due compensation, in substance, is a statute *protecting private property and preventing it from being taken by one of the common owners without regard to the enjoyment of the others.* * * * If, on the other hand, there be, as a consequence of the right of the surface owners to reduce to possession, a right of property in them in and to the substances contained in the common reservoir of supply, then, as a necessary result of the right of property, its indivisible quality, and the peculiar position of the things to which it relates, there must arise the *legislative power to protect the right of property from destruction."* (177 U. S. 190, 210-211.) (Italics ours.)

(Note: We have heretofore pointed out, at page 49 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm," that the deprivation need not be absolute. Any unauthorized restriction of the use thereof is as much a taking for constitutional purposes as if the property itself were taken.)

In view of the above quoted extract from the opinion of this court in the *Ohio Oil Company* case, and the review of this case and of the succeeding decisions of this court which are analyzed at pages 31-40 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm," there can be no doubt but that, under the previous decisions of this court, the basis and extent of the legislative power is the protection of the private correlative rights of the surface owners in a common source of supply by preventing waste or other conduct by one or more of them which injuriously affects the private correlative rights of others in the same field, and that no right exists in the *public* to the oil and gas in such field, nor can the surface owners constitutionally be deprived thereof, without compensation, *in the interest of the public as consumers.*

The Supreme Court of California, in *People v. Associated Oil Company,* decided shortly after the decision of the District Court of Appeal in the case at bar, erroneously states that "because of their peculiar nature, the public has a definite interest in their preservation from waste and destruction" and that "This is true because of their character as natural resources and also because the public interest has attached by virtue of positive statutory law or by court judgment independent of statute"; it bases these statements upon the decision of this court in *Ohio Oil Company v. Indiana,* 177 U. S. 190, which it states does not limit the legislative power to the protection or the prevention of waste of the common property of the surface owners by the acts of one or more of them injuriously affecting the correlative rights

of others, and cites extracts from *Hague v. Wheeler,* 157 Pa. St. 324, and *Townsend v. State,* 147 Ind. 624, to support its conclusion. (See pages 29-32 of Appendix B of "Supplement to Brief of Appellees on Motion to Dismiss," where the opinion is set out in full.)

An analysis of the decision of this court in the *Ohio Oil Company* case, however, shows that this court did not follow or approve the statements in *Hague v. Wheeler* and *Townsend v. State* to the effect that the power of the state extended not only to protecting all the correlative surface owners in the exercise of their correlative rights by preventing waste or other conduct by one or more of them injuriously affecting others but also extended to regulation and control in the interest of the public at large as consumers. An examination of the opinion in *Ohio Oil Company v. Indiana* shows that the quotation made by the court from the opinions of both of these two cases was a part of its discussion *for the purpose of showing 'the nature of the right of the surface owner' to the gas and oil as they are contained in their natural reservoir, and the rule of property on that subject in the state of Indiana.* The court did not refer to these cases or the quoted extracts therefrom for *the purpose of showing the power of the legislature to enact legislation upon that subject.* On the subject of the legislative power this court plainly held that the legislative power could be manifested only for the purpose of protecting the correlative private rights of the surface owners by preventing waste or other conduct by one or more of the surface owners injuriously affecting other surface owners, as is clearly shown by the foregoing extract from the opinion.

That the police power of the state is so limited is also clearly shown by the opinions of this court in *West v. Kansas Natural Gas Co.*, 221 U. S. 229, and *Walls v. Midland Carbon Co.*, 254 U. S. 300, where the prior decisions of this court, including the *Ohio Oil Company* case, are reviewed and analyzed. (See pages 34-40 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm," reference to which is hereby made.)

Hathorn v. Natural Carbonic Gas Co., 194 N. Y. 326, 87 N. E. 504, involved the constitutionality of a statute of New York which contained four prohibitions respectively forbidding

> "*accelerating or increasing the flow of percolating waters or natural carbonic acid gas,* such as are found at Saratoga Springs, from wells bored into the rock, by *pumping or any artificial contrivances whatsoever, first, absolutely and without qualifications;* second, when the result of so doing will be to impair the natural flow or the quality of such waters or gas in the spring or well of another person; third, when the object of so doing is to extract and collect the carbonic acid gas for the purpose of marketing the same; and fourth, *prohibit the doing of any act whereby the flow* or quality of the waters described, or of the carbonic acid gas or other mineral ingredients therein, in any spring or well, *is diminished,* etc."

The fourth prohibition was so broad and unqualified that it was admitted to be unconstitutional and inoperative. The first and second prohibitions were likewise declared to be unconstitutional. Referring to them, the court said:

> "The former [the first two prohibitions of the statute] not only prohibit pumping waters and gas

described where the result will be to interfere with the spring of another person, but forbid such acts absolutely, even though they interfere with nobody. Their application is not limited to waste or commercial uses, but, under them, as they are plainly and explicitly written, a landowner in any part of the state is prohibited from extracting, by means of the simplest and most modest contrivance, waters from a well bored on his premises for the most legitimate and natural purpose connected with the use of his premises, provided the well happens to strike rock, and provided the water contains mineral salts and carbonic acid gas; and *this whether such act interferes or not, in an infinitesimal degree, with the supply of some other person. It seems to me that this is such a clearly unlawful interference with well-established property rights already discussed that amplification of the idea is unnecessary.*" (23 L. R. A. (N. S. 445-446.) (Italics ours.)

With reference to the third provision, *in order to uphold its constitutionality,* as stated by this court in *Lindsley v. Natural Carbonic Gas Co.:*

"* * * the court, by processes of interpretation having its approval, read into the provision an exception or qualification making it *inapplicable where the waters are not drawn from a common source of supply, and also where, if they be drawn from such a source, no injury is done thereby to others having a like right to resort to it.*" (220 U. S. 61, 73.) (Italics ours.)

The statute so construed was held not to violate the due process clause of the Fourteenth Amendment, in that under the *Ohio Oil Company* case, the state under its

police power had the right to regulate the private correlative rights in a common source of supply by prohibiting waste or other conduct injuriously affecting the rights of other private owners having correlative rights in such common source of supply.

The case at bar is quite analogous to, and is controlled by the principle announced in *Herminghaus v. Southern California Edison Company,* 200 Cal. 81. In that case it appeared that the Herminghaus heirs were utilizing the underflow of a stream to which their land was riparian as a natural force in lifting and flowing the surface waters of the stream to their lands which were largely unirrigated, just as appellants here are efficiently using gas in lifting oil to the surface without injuriously affecting the rights of others. It was claimed by the Edison Company, which was impounding and storing the waters of the stream higher up for developing hydro-electric energy to be supplied to the consuming public throughout Southern California, that the use of the underflow of the stream by the Herminghaus heirs in merely lifting the surface waters of the stream to their unirrigated lands, which underflow then went wastefully into the ocean, was *waste,* in that they were not serving a "useful and beneficial purpose."

Sections 11 and 42 of the Water Commission Act attempting to limit the use of water by preventing waste were relied upon by the Edison Company. Section 11 of the Act provided that:

> "All waters flowing in any river, stream * * * excepting so far as such waters have been or are being applied to useful and beneficial purpose upon,

> or in so far as such waters are or may be reasonably needed for useful, and beneficial purposes upon lands riparian thereto, or otherwise appropriated, is and are hereby declared to be public waters of the State of California and subject to appropriation in accordance with the provisions of this act." (200 Cal. 81, 115.)

The act then provided that if any waters are not put to a useful or beneficial purpose for any continuous period of ten years, such non-application shall be deemed conclusive presumption that the use of such portions of such waters on such riparian land is not needed for any useful or beneficial purpose, and such waters were declared to be the property of the state, and subject to appropriation by the general public. Section 42 of the Act provided that the term "useful or beneficial purposes," as to irrigation of uncultivated areas not devoted to cultivated crops, should be construed to mean the use in any one year of not more than two and one-half acre feet of water per acre, the inference being that any additional amount should constitute waste.

With reference to the claim that the use of the underflow of the stream in lifting the upperflow thereof to the levels of entry on the lands of the Herminghaus heirs was waste, the Supreme Court of California said:

> "* * * *The rights which the plaintiffs assert herein inhere* not only in the upper flow of said waters which actually enters upon and permeates and fructifies the soil of riparian lands, but also *in the underflow of said river which lifts the upperflow thereof to the levels of entry upon such lands, and which, having done so, passes by to uplift its peak,*

*in turn, to the levels of lower riparian lands along the course of said river through the plain. The underflow of streams is, with respect to riparian rights therein, no more waste waters than is the upperflow thereof which the riparian owner uses, since without the uplift of the former the outflow and beneficial use of the latter could not exist. Such waters are therefore serving a useful and beneficial purpose in relation to said lands. * * * Had nature not been thus kind; had the plaintiffs originally been obliged at large expense and by artificial means to dig the watercourses, create the channels, and make the connections at various levels for the intake of the waters of the river to which as riparian owners they were entitled, it could not, we think, be reasonably contended that their conduct in so doing was so unreasonable as to justify upper appropriators upon said stream in taking away their riparian rights in the waters of the stream which they had thus artificially and at great expense applied to their lands.* Neither could it be said that the amount of water of said river which is thus lifted to the varying levels of plaintiffs' lands and enters upon and flows over the same by means of the channels which nature has provided is to be held unreasonable merely because it exceeds the volume which the trial court suggested would be sufficient, *if conserved and distributed through expensive artificial methods and appliances. As against appropriators the plaintiffs were not obliged by artificial appliances or otherwise to limit their natural use and enjoyment of the waters of said river,* nor can it be said, as supported by either reason or authority, that a lower riparian owner, as against an upper riparian owner attempting to impound a greater amount of the waters of the stream than that to which he would be entitled under his

> well-defined riparian right, should have cast upon him the burden of limiting by artificial contrivances his natural use and enjoyment of said waters in order that the upper riparian owner may make other and greater uses thereof than those to which he is lawfully and naturally entitled. There is nothing in the record herein tending in any degree to show that the defendants herein ever offered, or would be willing to offer, to reimburse the plaintiffs for any portion of the cost, expense, and outlay which would be required in order to limit the amount of water entering upon plaintiffs' land to the amount thereof indicated by the trial court as susceptible of being made reasonably adequate through such artificial means." (200 Cal. 107-108.) (Italics ours.)

So by direct analogy to the *Herminghaus* case, the use of natural gas in flowing and lifting oil to the surface under conditions not injuriously affecting the rights of other surface owners, is a useful and beneficial purpose in which appellants have a vested right. Neither the legislative nor the judicial branch of the state is justified in depriving them of this right for the purpose of conserving any part of the natural gas so utilized for the future use of consumers or the general public, except by eminent domain proceedings, with prior compensation. The general public and consumers are in the same position as against appellants in this case that the general public and appropriators were in, in the *Herminghause* case, as against riparian owners. The lands in the Santa Fe Springs oil field are privately owned and are a part of a Mexican land grant [R. 169-170], and the state has not, and never did have, any right, title or interest whatever thereto; likewise, consumers and the general public have no interest

therein, and cannot acquire any rights or interests therein or deprive petitioners of any of their vested rights therein except through eminent domain proceedings in which petitioners are first compensated therefor. Therefore, the following extract from the decision in the *Hermighaus* case is applicable and most appropriate:

> *"Neither a court nor the legislature has the right to say that because such water may be more beneficially used by others it may be freely taken by them. Public policy is at best a vague and uncertain guide, and no consideration of policy can justify the taking of private property without compensation. If the higher interests of the public should be thought to require that the water usually flowing in streams of this state should be subject to appropriation in ways that will deprive the riparian proprietor of its benefit, the change sought must be accomplished by the use of the power of eminent domain.* The argument that these waters are of great value for the purposes of storage by appropriators and of small value to the lower riparian owners defeats itself. If the right sought to be taken be of small worth, the burden of paying for it will not be great. If, on the other hand, great benefits are conferred upon the riparian lands by the flow, there is all the more reason why these advantages should not, without compensation, be taken from the owners of these lands and transferred to others.' * * *" (200 Cal. 81, 112.) (Italics ours.)

Referring to the claims of the Edisor Company that it had gained certain definite additional rights as an appropriator of the waters by virtue of the rights attempted to be conferred upon the public under the provisions of

the so-called Water Commission Act of 1913, sections 11 and 42, the court said:

> "* * * The only possible theory upon which the legislature of the state could be conceded to be empowered to arrogate to itself the right to determine what are the 'useful and beneficial purposes' to which lands held in private ownership shall be devoted or to which those riparian rights which are an integral part and parcel of such lands and which are already vested rights shall be limited in their use and enjoyment to the extent declared in the above-quoted concluding clauses of section 42 of said Water Commission Act is that put forward by certain of the *amici curiae* herein to the effect that such an arrogated act of legislation is justifiable as a proper exercise of the police power of the state. It may be conceded that the phrase 'police power of the state' has, as to its scope and meaning been subjected to a quite severe strain of recent years in the endeavor to so expand it as to cover all sorts of legislation sought to be enacted in the asserted interest of modern progress; but we have yet to be referred to a case wherein it has been judicially so far expanded as to invest the legislative department of this state with arbitrary power to destroy vested rights in private property when such rights are being exercised and such property is being employed in the useful and in nowise harmful production of wealth, and when such use and the product thereof cannot be said or shown to be inimical to public health or morals or to the general welfare; but, on the contrary, must be conceded to be beneficial to each and all of these. * * * To concede that the state legislature has the right arbitrarily to fix as to the latter (uncultivated areas) the amount of water which the riparian

proprietor may take and use thereon would be to concede an equal power to make a like arbitrary fixation in respect to cultivated areas also, entirely regardless of the foregoing elements which are necessarily the determining factors in such fixation. To concede this would be to concede to the legislative department of the state government the arbitrary power to destroy vested rights in private property of every kind and character." (Italics ours.)

200 Cal. 81, 117, 118.

It needs no argument from us to show the close similarity and analogy between the facts and the law involved in the *Herminghaus* case and those involved here. The substances dealt with, water and gas, are similar in that they are both migratory although dissimilar in their uses, and in that the right to the use of the water is limited to use on the riparian land, whereas gas and oil are general articles of commerce, the use of which is not restricted, so that the measure of unreasonable use or waste of the former is by no means applicable to the latter. However, in both cases the owner of the land has a vested right to the natural product as a lifting force, in the one case to raise surface waters to the level of the land for use thereon, and in the other case to flow and lift oil for the owner. In both cases an attempt is made to deprive the landowner of the use of the natural product for the benefit of the general public, in the one case by making it available for appropriation by the general public and in the other case by conserving it for the future use of gas consumers and the general public. In both cases this effort is void and in violation of the constitutional provisions above referred to, unless acquired

through regular eminent domain proceedings involving prior compensation.

Certainly water is even more necessary to the general public than gas. There are no substitutes for the former, while fuel-oil, artificial gas, coal and electric energy can be and are generally used for all the purposes for which natural gas is used. [R. 151-155.] So the case at bar is an even stronger case than is the *Hermingĥaus* case. Moreover, the statute here involved as applied to appellants not only has the necessary effect of depriving appellants of the use of sufficient gas for the useful and beneficial purpose of lifting and producing oil under conditions not injuriously affecting the operations of others in the field, with a huge daily loss to appellants, but it also seriously, permanently and irreparably injures and damages appellants' wells, all without just compensation and without recourse of any sort. [R. 3-12.]

We call attention to *Palmer v. Railroad Commission,* 167 Cal. 163, and *City of San Bernardino v. Riverside,* 186 Cal. 7, which involved the provisions of section 1410 of the Civil Code in which it was provided that "All water or use of water within the state of California is the property of the state of California * * *." The court, however, held that this provision is unconstitutional and could not operate to deprive private persons of their vested water rights and give the same to the state of California. These cases thoroughly demonstrate the great error of the Supreme Court of California in *People v. Associated Oil Company* [p. 29, Supplement to Brief of Appellees on Motion to Dismiss or Affirm], in holding that a public interest in privately owned natural gas

and oil may attach, either by reason of their character as natural resources or by virtue of legislative declaration, or by court judgment.

In *Ex parte Kelso*, 147 Cal. 609, a municipal ordinance absolutely prohibiting the maintenance or operation of a rock or stone quarry within a large portion of the city limits, without any limitation as to the mode of quarrying or any consideration of whether same would result in injury to other property owners in the vicinity, was held to be an arbitrary and unwarrantable interference with the right of private property and invalid, and the petitioner who had been convicted of violation thereof was discharged upon *habeas corpus* for lack of *jurisdiction* of the court to enforce the ordinance. The court said:

> "The case, however, presents a much more serious question. The effect of the ordinance absolutely prohibiting the maintenance or operation of a rock or stone quarry within certain designated limits of the city and county of San Francisco is to absolutely deprive the owners of real property within such limits of a valuable right incident to their ownership,—viz., the right to extract therefrom such rock and stone as they may find it to their advantage to dispose of. While the use to which a man may put his property may be restricted or regulated by the state, in the exercise of its police power, so far as may be necessary to protect others from injury from such use, it is of course elementary that the enjoyment of one's property cannot be interfered with or limited arbitrarily. As is said in Tiedeman's Limitations of Police Power, the next thing to depriving a man of his property is to circumscribe him in its use. A limitation of the use

pro tanto deprives him of the enjoyment thereof, and any arbitrary action in this regard is a taking of private property without due process of law. (Secs. 122, 122a.) While in the exercise of its police power the state may limit or regulate the use, any such limitation or regulation must find its justification in the necessity for the protection of the *legal rights* of others. If it does not, it is an unwarrantable invasion of property rights, against which the courts will protect. Whether or not a certain limitation or regulation is essential is largely a question for the legislative department, to be determined with reference to all the existing circumstances, and the courts will not ordinarily interfere where it can be seen that the regulation has some proper relation to an object within the domain of the police power of the state, which, as stated by Mr. Cooley, includes all regulations having reference to 'the comfort, safety or welfare of society.' But regulations which transcend these objects cannot be upheld by the courts as legitimate police regulations. (See *Ex parte Dickey,* 144 Cal. 234, 236 [103 Am. St. Rep. 82, 77 Pac. 924].)

"Applying these well-recognized principles to the ordinance before us, we are unable to perceive any ground upon which it may be sustained as a legitimate exercise of the police power. It is in no sense a mere regulation as to the manner in which rock or stone may be removed from the land by the owner thereof, but is an absolute prohibition of any such removal. However valuable the rock or stone may be if removed, and however valueless if not removed, the owner must allow it to remain in its place of deposit. Such a prohibition might be justified, if the removal could not be effected without improperly invading the rights of others, but it cannot be

doubted that rock and stone may under some circumstances be so severed from the land and removed as not in the slightest degree to inflict *any injury which the law will recognize. So far as such use of one's property may be had without injury to others it is a lawful use which cannot be absolutely prohibited by the legislative department under the guise of the exercise of the police power.*" (Italics ours.)

147 Cal. 609, 611-612.

Pennsylvania Coal Co. v. Mahon, 260 U. S. 393, 67 L. ed. 322, was a bill in equity brought to prevent the coal company from mining under the property of the plaintiffs in such a way as to remove the supports and cause a subsidence of the surface under their house. The plaintiffs claimed under a deed executed by the coal company which reserved the right to remove all of the coal under the land. The plaintiffs claimed that whatever may have been the rights of the coal company under the deed were taken away by the Kohler Act of the Pennsylvania Legislature. This statute prohibited the mining of anthracite coal in such a way as to cause the subsidence, among other things, of any structure used as a human habitation, with certain exceptions. The statute is admitted to destroy previously existing rights of property and contract as applied to that case, and the question presented was "whether the police power can be stretched so far." The court said:

"Government hardly could go on if, to some extent, values incident to property could not be diminished without paying for every such change in the general law. As long recognized, some values are enjoyed under an implied limitation, and must yield

to the police power. *But obviously the implied limitation must have its limits or the contract and due process clauses are gone.* One fact for consideration in determining such limits is the *extent of the diminution. When it reaches a certain magnitude, in most if not in all cases there must be an exercise of eminent domain and compensation to sustain the act.* * * *

"It is our opinion that the act cannot be sustained as an exercise of the police power, so far as it affects the mining of coal under streets or cities in places where the right to mine such coal has been reserved. As said in a Pennsylvania case: *'For practical purposes, the right to coal consists in the right to mine it.'* (Com. *ex rel. Keator v. Clearview Coal Co.*, 256 Pa. 328, 331, L. R. A. 1917E, 672, 100 Atl. 820.) *What makes the right to mine coal valuable is that it can be exercised with profit. To make it commercially impracticable to mine certain coal has very nearly the same effect for constitutional purposes as appropriating or destroying it.* This we think that we are warranted in assuming that the statute does.

"* * * The protection of private property in the 5th Amendment presupposes that it is wanted for public use, but provides that it shall not be taken for such use without compensation. A similar assumption is made in the decisions upon the 14th Amendment. Hairston v. Danville & W. R. Co., 208 U. S. 598, 605, 52 L. Ed. 637, 639, 28 Sup. Ct. Rep. 331, 13 Ann. Cas. 1008. When this seemingly absolute protection is found to be qualified by the police power, the natural tendency of human nature is to extend the qualification more and more until at last private property disappears. But that cannot be accomplished in this way under the Constitution of the United States.

"The general rule, at least, is that while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking. * * * We are in danger of forgetting that a strong public desire to improve the public condition is not enough to warrant achieving the desire by a shorter cut than the constitutional way of paying for the change. * * *

"We assume, of course, that the statute was passed upon the conviction that an exigency existed that would warrant it, and we assume that an exigency exists that would warrant the exercise of eminent domain. But the question at bottom is upon whom the loss of the changes desired should fall." (Italics ours.)

67 L. ed. 322, 325, 326.

The attorney general of the state, the city of Scranton, and the representatives of extensive interests, took part in the argument, and the general validity of the statute was involved. While the right which was invaded was a reserved right to mine coal, the principle of the decision applies with full force, because in the case at bar petitioners have the vested right to produce the oil and gas under their land under conditions which under the admitted facts do not injuriously affect the correlative rights of other surface owners in the field, which right is a part of the land itself, and is a property right. The value of this right, for all practical purposes, consists in the right to exercise it without interference. The effect and operation of the statute in the case at bar upon appellants is the subject of the next point of the argument.

The Supreme Court of California, in its opinion in *People v. Associated Oil Company,* in support of its at-

tempt to show that the legislative power extends to conserve privately owned natural resources for the benefit of the general public as consumers, cites *Boone v. Kingsbury,* 206 Cal. 148, 181, to show "the importance of petroleum and gas in industry" [p. 33, of "Supplement to Brief of Appellees on Motion to Dismiss or Affirm Judgment"], and states [p. 39] that

> "Obviously, the enactment is an effort on the part of the Legislature to conserve for the present and future needs great natural resources *in which the people of the state are interested.*"

It is well settled by the decisions of this court, however, that the mere fact that the Legislature or the public may feel some concern as to the continued existence or the continued supply of gas for industrial or domestic consumption by the inhabitants of the state as consumers, does not make the business of the companies producing oil and gas a "business affected with a public interest" or justify its regulation for the benefit of the general public as consumers. This court, in *Williams v. Standard Oil Company,* 278 U. S. 235, held invalid a statute of Tennessee purporting to authorize agencies of the state to fix prices at which gasoline might be sold within the state, because the effect was to deprive vendors of such gasoline of their property without due process of law, in violation of the Fourteenth Amendment. It was urged most strenuously that on account of the general use of gasoline for industrial purposes the business of dealing therein was "affected with a public interest." The court, however, held to the contrary, saying:

> "In support of the act under review it is urged that gasoline is of widespread use; that enormous quan-

tities of it are sold in the state of Tennessee; and that it has become necessary and indispensable in carrying on commercial and other activities within the state. But we are here concerned with the character of the business, not with its size or the extent to which the commodity is used. Gasoline is one of the ordinary commodities of trade, differing, so far as the question here is affected, in no essential respect from a great variety of other articles commonly bought and sold by merchants and private dealers in the country. The decisions referred to above make it perfectly clear that the business of dealing in such articles, irrespective of its extent, does not come within the phrase 'affected with a public interest.' Those decisions control the present case."

49 Sup. Ct. Rep. 141, 142-143.

The court reviews a great many authorities, and referring to the term "affected with a public interest," said:

"* * * As applied in particular instances, its meaning may be considered both from an affirmative and a negative point of view. Affirmatively, it means that a business or property, in order to be affected with a public interest, must be such or be so employed as to justify the conclusion that it has been *devoted* to a public use and its use thereby in effect *granted* to the public. Tyson & Bro.—United Theatre Ticket Offices v. Banton, *supra,* p. 434 [71 L. Ed. 724, 58 A. L. R. 1236, 47 Sup. Ct. Rep. 426.] Negatively, it does not mean that a business is affected with a public interest merely because it is large or because the public are warranted in having a feeling of concern in respect of its maintenance. *Id.* p. 430. The meaning and application of the phrase are examined at length in the Tyson case, and we see no reason for restating what is there said."

49 Sup. Ct. Rep. 141, 142.

In *Tyson & Bro. etc. v. Banton*, 273 U. S. 418, 71 L. Ed. 718, this court said:

> "A business is not affected with a public interest merely because it is large or because the public are warranted in having a feeling of concern in respect of its maintenance. Nor is the interest meant such as arises from the mere fact that the public derives benefit, accommodation, ease or enjoyment from the existence or operation of the business; and while the word has not always been limited narrowly as strictly denoting 'a right,' that synonym more nearly than any other expresses the sense in which it is to be understood.
>
> "The characterizations in some decisions of businesses as 'quasi public' (People v. King, 110 N. Y. 418, 428, 1 L. R. A. 293, 6 Am. St. Rep. 389, 18 N. E. 245) 'not "strictly" private (Aaron v. Ward, 203 N. Y. 351, 356, 38 L. R. A. (N. S.) 204, 96 N. E. 736) and the like, while well enough for the purpose for which they were employed, namely, as *a basis for upholding police regulations in respect of the conduct of particular businesses, cannot be accepted as equivalents for the description 'affected with a public interest,' as that phras is used in the decisions of this court as the basis for legislative regulation of prices. The latter power is not only a more definite and serious invasion of the rights of property and the freedom of contract, but its exercise cannot always be justified by circumstances which have been held to justify legislative regulation of the manner in which a business shall be carried on.*
>
> "And, finally, *the mere declaration by the legislature that a particular kind of property or business is affected with a public interest is not conclusive upon*

> *the question of the validity of the regulation.* The matter is one which is always open to judicial inquiry. Chas. Wolff Packing Co. v. Court of Industrial Relations, 262 U. S. 522, 536, 67 L. ed. 1103, 1108, 27 A. L. R. 1280, 43 Sup. Ct. Rep. 630." (Italics ours.)
>
> 71 L. Ed. 718, 722-723.

Counsel for appellees will no doubt seek to distinguish these cases on the theory that they relate only to price fixing statutes, but it will be noticed from the foregoing extract that the power to fix prices is "a more definite and serious invasion of the rights of property," and "its exercise cannot always be justified by circumstances which have been held to justify legislative regulation of the manner in which a business shall be carried on."

In *Wolff Packing Co. v. Court of Industrial Relations,* 262 U. S. 522, 67 L. Ed. 1103, the statute involved was the compulsory arbitration statute of Kansas, and the substance of the opinion holding the statute void is thus stated in the syllabus:

> *"The attempt by a state to create continuity of such businesses as food and clothing production and mining,* by requiring employers to pay wages fixed by an industrial court, and forbidding the employees to strike, *violates the provision of the 14th amendment to the federal constitution,* forbidding deprivation of liberty and property without due process of law."

Chief Justice Taft, delivering the opinion of this court, said:

> "The necessary postulate of the Industrial Court Act is that the state, representing the people, is so

much interested in their peace, health, and comfort that it may compel those engaged in the manufacture of food and clothing, and the production of fuel, whether owners or workers, to continue in their business and employment on terms fixed by an agency of the state, if they cannot agree. * * *

"If, as, in effect, contended by counsel for the state, the common callings are clothed with a public interest by a mere legislative declaration, which necessarily authorizes full and comprehensive regulation within legislative discretion, there must be a revolution in the relation of government to general business."

262 U. S. 522, 533-534, 539.

Since the necessary effect of the statute as applied to appellants is to compel appellants and other operators in Santa Fe Springs to conserve natural gas for the benefit of the general public, and thus to require them to continue in the business of producing oil (and also gas), for this additional reason under the case last cited it constitutes a violation of the due process clause of the fourteenth amendment of the United States Constitution.

That the mere character of oil and gas as natural resources does not vest the public with any interest therein, is further shown by *Moore v. Small,* 17 Cal 199. In that case it was contended that the title to all minerals became vested in the state of California upon its admission into the union as an incident to sovereignty upon the theory that this followed "from the excellency of the thing." The court held, however, to the contrary.

POINT E.

The Statute as Applied to Appellants Constitutes a Taking of Appellants' Property for a Public Use Without Compensation and Without Due Process of Law, in Violation of the Fourteenth Amendment.

From the admitted and undisputed facts, shown by the record, there can be no doubt but that the California statute, as construed and applied to appellants, constitutes a taking of appellants' property for a public use without compensation and therefore a taking without due process of law, in violation of the fourteenth amendment. The demurrer to the petition for writ of prohibition admits the facts alleged in the petition, including the facts alleged in paragraphs 7 and 8, and that same were established by the uncontradicted evidence introduced upon the hearing of the preliminary injunction. [R. 3-8.]

Since these facts have already been stated and reviewed (pp. 6-19 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm"), and the proposition has been thoroughly argued under Point E of said brief (pp. 46-54), in the interest of brevity reference is hereby made thereto. Among other things, it is there established that the admitted sole purpose of the decrease in the allowed gas production to appellants was to conserve such natural gas for the benefit of the general public for light, heat and fuel [R. 14], and it is shown that this appears from the face of the provisions of the order itself. It cannot be contended that under such circumstances the allegation that such was the sole ground of the order is a

conclusion not admitted by the demurrer. (See *Regan v. Farmers Loan & Trust Co.*, 154 U. S. 362, 401-402, where a similar situation existed.) We need only point out here the additional fact that under the uncontradicted evidence before the Superior Court it appeared that no natural gas is being produced by any of appellants in a quantity more than is reasonably or necessarily required in the production of oil therefrom in accordance with efficient methods and appliances [R. 4, 7], and that each of the wells of appellants in said field is so operated that it does not injuriously affect the operations of others owning and/or operating wells in said field. [R. 7-8.]

Since the operation and effect of the state statute involved, as applied to appellants, is not a regulation of private correlative rights in a common source of supply by preventing waste or other conduct by one or more of them which injuriously affects the correlative rights of other surface owners in the common source of supply, but is directed to the curtailment of production itself for the benefit of the consuming general public, it is, under the authorities cited under Point D of this and our previous brief, repugnant to the due process clause of the Fourteenth Amendment.

Furthermore, the California statute shows on its face that it was enacted for the benefit of the general consuming public and not for the purpose of regulating the private correlative rights of the surface owners in an oil and gas field. Section 8b provides that: "The unreasonable waste of natural gas * * * whether before or after the removal of gasoline from such natural gas, is hereby declared to be *opposed to the public interest*, and

is hereby prohibited and declared to be unlawful." Likewise, section 21a declares: "The charges hereinafter provided for are directed to be levied * * * to provide a means by which to supervise and protect deposits of petroleum and gas within the state of California, *in which deposits the people of the state of California are hereby declared to have a primary and supreme interest.*"

Since, under the authorities cited under Point D of this and our former brief the legislative power does not extend to curtailment of production of oil or gas for the benefit of the general consuming public, but is limited to regulation of the private correlative rights of the surface owners by preventing waste or other conduct by one or more of them which injuriously affects the private correlative rights of other owners in the common source of supply, it follows that the statute *on its face* is also repugnant to the due process clause of the Fourteenth Amendment.

POINT F.

Under the Admitted Facts, the Extent of the Invasion of Appellants' Property Rights Is So Great, So Arbitrary, So Oppressive and Unreasonable, That It Goes Too Far Under the Police Power of the State.

In addition to the argument, citations to the typewritten record and citations contained under this point at pages 55-60 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm," we wish merely to call the court's attention to the following extract from the recent opinion of this court in *Washington ex rel. Seattle Title Trust Co. v. Roberge*, 278 U. S. 116, 121:

"* * * Legislatures may not, under the guise of the police power, impose restrictions that are unnecessary and unreasonable upon the use of private property or the pursuit of useful activities. Lawton v. Steele, 152 U. S. 133, 137, 38 L. ed. 385, 388, 14 Sup. Ct. Rep. 499; Adams v. Tanner, 244 U. S. 590, 594, 61 L. ed. 1336, 1342, L. R. A. 1917F, 1163, 37 Sup. Ct. Rep. 662, Ann. Cas. 1917D, 973; Meyer v. Nebraska, 262 U. S. 390, 399, 400, 67 L. ed. 1042, 1045, 1046, 29 A. L. R. 1446, 43 Sup. Ct. Rep. 625; Jay Burns Baking Co. v. Bryan, 264 U. S. 504, 513, 68 L. ed. 813, 826, 32 A. L. R. 661, 44 Sup. Ct. Rep. 412; Norfolk & W. R. Co. v. Public Serv. Commission, 265 U. S. 70, 74, 68 L. ed. 904, 907, 44 Sup. Ct. Rep. 439; Pierce v. Society of Sisters, 268 U. S. 510, 534, 535, 69 L. ed. 1070, 1077, 1078, 39 A. L. R. 468, 45 Sup. Ct. Rep. 571; Weaver v. Palmer Bros. Co., 270 U. S. 402, 412, 415, 70 L. ed. 654, 657, 658, 46 Sup. Ct. Rep. 320; Tyson & Bro.—United Theatre Ticket Offices v. Banton, 273 U. S. 418, 442, 71 L. ed. 718, 727, 58 A. L. R. 1236, 47 Sup. Ct. Rep. 426."

All of the cases cited by the Supreme Court of California and by the District Court of Appeal of California are clearly distinguishable from the case at bar and are in no way inconsistent with the position of appellants herein. Some of them have already been referred to in this and our former brief in this court.

Marrs v. City of Oxford, 32 Fed. (2d) 134, in which a petition for *certiorari* was denied by this court October 21, 1929, involved a city ordinance which limited the number of oil wells within the city limits, and was upheld as being within the police power on account of the danger of fires

in the business and residence districts and the noise and other objectionable features. These reasons would have been sufficient for the entire prohibition of any oil wells within the city limits.

In *Oxford Oil Company v. Atlantic Oil Producing Co.*, 22 Fed. (2d) 597, in which *certiorari* was denied by this court (72 L. Ed. 1000), the cause of action was against the individual members of the Railroad Commission, certain of its employees and the lessee of an adjoining tract to recover damages which the plaintiff alleged were sustained as the result of an enforcement of a rule of the Railroad Commission. The complaint showed that the plaintiffs were the owners in fee of a long, narrow strip of land upon which they were permitted to drill only four wells. A general demurrer to the complaint was sustained, the court holding that in no event would the state officers be personally liable. It there appeared that the operation of the plaintiffs would injuriously affect the rights of other surface owners, whereas in the case at bar the contrary appears. The statute and the rule were enacted before any wells were drilled, and did not involve an already developed oil field. This last statement is true of all of the cases cited by appellees.

A denial by this court of *certiorari* in the two cases last referred to imports no opinion by this court on the merits of those cases (*United States v. Carver*, 260 U. S. 482), and does not give to either case the character of a precedent in this court (*Hamilton Brown Shoe Co. v. Wolff Bros. & Co.*, 240 U. S. 482).

Commonwealth v. Trent (Ky. 1903), 73 S. W. 390, is distinguished by the fact that defendants were operating

its gas wells under pretense of manufacturing lampblack, but really with the unlawful purpose of wasting the gas *without any utilization whatever* and destroy the gas territory in Meade county, in violation of the rights of other owners having gas wells penetrating the same reservoir. The court said:

> "The defendants had the right to use the gas in any sort of lawful business done or attempted to be done in good faith, but if the use of the gas was a mere pretext for wasting it they are none the less responsible than if they had allowed it to escape at the well."
>
> 73 S. W. 392-393.

This was a clear case of wilful destruction of property without any utilization and without benefit to the person accomplishing it. It clearly has no application to the facts in the case at bar where the natural gas produced by petitioners is serving the highly useful and beneficial purposes of producing oil in a lawful business, the manufacture of casing-head gasoline, and for heat and fuel, and where petitioners are not injuriously affecting the rights of others. The well involved in *Commonwealth v. Trent* was a pure gas well, and the statute, by its terms, did not apply to a well which was producing oil. Furthermore, under the statute if the gas was utilized for any beneficial purpose by the operator, such use was not prohibited, and hence the facts of our case would not be a violation of the Kentucky statute.

State v. Carson Carbon Co., 162 La. 781, 111 So. 162, is a case arising in Louisiana where under the constitution of that state oil and gas are natural resources belonging

to the state and not to the owners of the surface of the land overlying the oil and gas deposits. The state being the owner, it was "merely exercising the proprietary rights of the state in its natural resources." It could absolutely prohibit the taking of any oil or gas, and no divesting of private property under such a condition can be conceived (*State v. Thrift Oil & Gas Co.*, 162 La. 165, 110 So. 188; *Geer v. Connecticut*, 161 U. S. 519, 525). Accordingly, the state was held to have the right, under the constitution of Louisiana, to regulate and impose conditions as to the amount of natural gas from any well which might be consumed in the production of carbon black.

In *Walls v. Midland Carbon Co.*, 254 U. S. 300, a Wyoming statute was designed to prohibit the use of natural gas in the manufacture of carbon black under conditions where it injuriously affected the correlative rights of other surface owners overlying a common source of supply. The statute applied only to gas produced from wells located within ten miles of a town and the facts showed that the gas being produced and used in the manufacture of carbon black involved a greatly disproportionate taking from the common source of supply and injuriously affected the operations of other surface owners who were supplying the inhabitants of a town within a ten-mile radius with light, heat and fuel. No oil was involved, the deposit being one of pure natural gas. As we have previously pointed out (pages 38-40 of our former brief), the statute was upheld on the basis of the doctrine of the *Ohio Oil Company* case, namely, the regulation and protection of the private cor-

relative rights of the surface owners by the prevention of waste or other conduct of one or more of them injuriously affecting the rights of others in a common source of supply.

It has been suggested that the Indiana statute, which prohibited the escape of any natural gas for a longer period than two days next after a gas or oil well is brought in, and which was upheld by this court in *Ohio Oil Company v. Indiana,* 177 U. S. 190, is a greater invasion of property rights than is involved in the California statute, and that, for this reason, the California statute does not go too far to be a valid exercise of the police power. This suggestion, however, ignores the great difference in the underlying facts between the two cases. In the Indiana case there was a great deposit of *pure natural gas* (not mingled with any oil) in a subterranean reservoir underlying nine counties, which was discovered in 1886 and which had been highly developed so that a great industrial community had been built up in these counties during the well-known "gas craze" existing during this period. This reservoir of natural gas had well-defined limits, and *all* of the operators in the field were engaged in the business of producing *natural gas* for light, heat and industrial purposes which were the chief and primary purpose of the natural gas and for which it had a great value. The demand for the gas in Indiana for such purposes far exceeded the supply. In 1897, some ten or eleven years after the discovery of this pure natural gas reservoir and after the drilling of a great many natural gas wells, oil was discovered in a lower stratum of mingled oil and gas. The Ohio Oil Company was one of

just a few companies exploiting this new discovery of oil. It was interested only in the production of oil, and permitted the gas which was found with the oil, and also the gas in the overlying pure natural gas reservoir, to escape into the air. This resulted in a tremendous injury to the great host of other operators in the field operating pure gas wells and interested only in the production of natural gas which was the greatly predominant industry. The admitted facts were that the gas percolated freely through a stratum of rock known as "Trenton rock," so that a well penetrating the natural gas reservoir might draw off the entire volume of gas in the reservoir. The Indiana decisions show that the gas pressure throughout the gas reservoir underlying nine or ten counties was the same. This court therefore said:

> "* * * From this it must necessarily come to pass that the entire volume of gas and oil is in some measure liable to be decreased by the act of anyone who, within the superficial area, bores wells from the surface and strikes the reservoir containing the oil and gas."
>
> 177 U. S. 190, 201.

And so the statute was upheld because, in truth and in fact, the operations of the Ohio Oil Company were highly injurious to the great host of other operators in the field operating pure gas wells, and solely upon this theory of protecting the private correlative rights of other surface owners or operators so injuriously affected.

In California and in the case at bar the underlying facts are fundamentally different and in many respects are diametrically opposed to those in the Indiana case. In-

stead of the demand for natural gas far exceeding the supply, in California the supply of natural gas greatly exceeds the demand. The Supreme Court of California took judicial notice of this in *People v. Associated Oil Company* [see middle of page 36, "Supplement to Brief of Appellees on Motion to Dismiss or Affirm"]. In California the gas and oil do not freely move and percolate throughout the field, but this court judicially knows, as stated in *Chandler v. Hart,* 161 Cal. 405, 418:

> "* * * Each well is separate from every other and by means of it the oil can be taken only from a limited area of four or five acres immediately surrounding it. For this reason the extraction of oil from the whole of a large tract granted by an ordinary oil lease requires, not one 'stock,' or one well, as a means of access to the whole deposit of oil, but a separate and independent well upon every few acres of the oil-bearing territory. The tract must be dotted with wells, each as separate and distinct in its installation and operation as if owned by different persons."

Scientific knowledge of underground conditions under which oil and gas exist has increased so greatly since the time of the *Ohio Oil Company* case and the earlier cases, that it is now generally recognized that such deposits in their original state in an undrilled field are stationary and that there is no lateral movement; also that the extent of the drainage of oil and gas is very limited although it varies somewhat, depending on the gas pressure, the porosity of the formation, the viscosity of the oil, and other factors, and that these substances do not percolate freely underground. (*Mills and Willingham on Oil and*

Gas, pp. 18 and 26; *Chandler v. Hart,* 161 Cal. 405, 418; *Bodcaw Lumber Co. v. Goode* (Ark.), 254 S. W. 345, 29 A. L. R. 518; *Osborn v. Arkansas etc. Oil & Gas Co.,* 103 Ark. 175.) Furthermore, in the case at bar we have no stratum of pure natural gas overlying an oil and gas stratum. We have not, therefore, in the Santa Fe Springs oil fields a large number of operators or any operator producing gas for light, heat and industrial purposes from pure natural gas wells whose operators are interferred with by the operations of a comparatively few oil companies interested only in the production of oil as was the case in Indiana. The admitted and uncontradicted facts adduced in the Superior Court show that

> "* * * *all* of the owners and/or operators of each and every well in said field which are and have been producing oil and gas, are operating such wells primarily and chiefly for the oil produced and to be produced therefrom, and that the production of gas therefrom is and has been incidental and a necessary result; that it would not be possible to produce oil from any of the flowing wells in said field without the production of natural gas; that the chief and primary value of the natural gas produced from the flowing wells in said field is in flowing oil to the surface * * *." [R. 4.]

It also appears from the uncontradicted evidence

> "* * * that the use of natural gas as a propelling force in moving and producing oil is prevalent in the state of California and is according to the universal custom of the various localities throughout California in which oil and natural gas are produced from flowing wells * * *." [R. 3.]

In view of the above mentioned conditions in California, and the further fact that without the utilization of natural gas the dominant and important oil industry of the state cannot exist, and having in mind that the legislature of this state, in enacting the present statute did not follow the stringent Indiana statute but attempted to prohibit only the unreasonable waste of natural gas, it is apparent that a statute such as the Indiana statute would not be constitutional under the conditions existing in California. The extent of the invasion of property rights would go too far, and would require the exercise of the right of eminent domain. Local conditions must be taken into account in determining the extent of the police power. (*Terrace v. Thompson,* 263 U. S. 197.) The Indiana statute, after the oil development had proven to be of commercial importance, was regarded as too drastic and so was repealed shortly after the decisions in the *Ohio Oil Company* case. Furthermore, on page 61 of the brief which appellees' counsel filed in the California District Court of Appeal, it is admitted that if the California statute had prohibited the escape of any natural gas (as did the Indiana statute), it "would have been unconstitutional and void for the reason stated," viz., in that it would be "unreasonable, impossible of performance and void."

The record further shows without contradiction

> "* * * that no natural gas is being produced by any of petitioners from any oil well or wells in said oil field in any quantity exceeding a reasonable proportion to the amount of oil produced from the same well or wells or any quantity more than is reasonably or necessarily required in the production of oil therefrom, in accordance with efficient methods and appliances * * *." [R. 4.]

It further appears from the uncontradicted evidence

> "* * * that *each of the wells of petitioners in said Santa Fe Springs oil field is efficiently operated and is so operated that it does not injuriously affect the operations of others owning and/or operating wells in said field;* that the gas-oil ratio of each well producing oil and gas is a fair index to the efficiency of such well in the reasonable utilization of natural gas in the production of oil; that *the gas-oil ratio of the wells of petitioners is the third lowest amongst the nine largest producers of oil in said Santa Fe Springs oil field* * * *." [R. 7.]

The record also shows without contradiction that the quantity of natural gas which appellants were utilizing in producing oil without injuriously affecting the operations of others at the time of the preliminary injunction amounted to 57,120,000 cubic feet per day, and that the market value of the oil produced daily was $31,286.40 [R. 5-6]; that said natural gas was utilized a *second* time in the manufacture of casinghead gasoline of the approximate value of $3,000 per day [R. 7]; that the greater part of the resulting dry natural gas which remained was further utilized a *third* time for fuel, field and other purposes in the operations of appellants, and so much as could be sold was sold at the prevailing price of 5¢ per thousand cubic feet [R. 7, 12]; that there was and is no further available means to any of appellants for any further utilization of the remaining dry gas and *such remaining dry gas had and has no market value* [R. 7]; that notwithstanding petitioners' diligent efforts, none of them were able to sell or even give away the same [R. 7]; that gas must be used as produced, and

cannot be stored except at prohibitive cost [R. 6, 154-156]; that by reason of the premises appellants are compelled, after making the aforesaid manifold utilizations thereof, to release and permit the remaining residual dry gas to escape into the air [R. 7]. Notwithstanding these admitted facts, the record shows that the Superior Court, acting under the supposed authority of the state statute here invoked, and admittedly *"for the sole purpose of conserving such natural gas for the benefit of the general public"* [R. 14], made its preliminary injunction by the terms of which appellants were required to curtail the daily gas production by more than 50%. The preliminary injunction itself shows upon its face that this curtailment in allowed gas production was not based upon any consideration of the proper utilization of gas by appellants or any of the other operators in the field in producing oil, or upon any waste or other conduct of one or more of the operators in the field injuriously affecting the private correlative rights of other owners and operators in the field, but was based solely upon the market demands or gas outlets for such gas for use above ground by the general public for light, heat and fuel, and this was for the sole purpose of curtailing the gas production in excess of such market demands for the future use of the general public for light, heat and fuel [R. 181-187; see also pages 10-12, 52-54, of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm"]. The effect of this enforced decrease in the amount of gas which appellants were producing admittedly without injuriously affecting the operations of others in the field was to decrease appellants' daily oil production by 9,205 barrels per day, of

a value in excess of $12,500 per day [R. 8, 12], to say nothing of the daily loss in the value of casinghead gasoline manufactured from its gas production, and the killing and/or permanent injury and damage to many of its wells, having an average cost of $150,000 each, and the permanent loss of many of such wells [R. 7-12]. All of this tremendous loss to appellants is without any compensation or recourse to appellants whatever therefor, and is all made for the sole purpose of conserving gas admittedly produced without injuriously affecting the rights of other surface owners in the field, for the future use and benefit of the general public as consumers for light, heat and fuel.

It is respectfully submitted that these facts show a situation vastly different from the underlying facts and situation existing in the case of *Ohio Oil Company v. Indiana.* The effect and operation of the California statute, instead of protecting the use of all the surface owners against the waste or other conduct of one or more of them injuriously affecting the others, which this court said in *West v. Kansas Natural Gas Company* is "true conservation" (221 U. S. 254), is to take away and deprive appellants and other surface owners and operators of their right to sufficient gas to produce oil under conditions not injuriously affecting the rights of other operators in the field in order "to reserve it for the future purchasers and use within the state on the ground that the welfare of the state will thereby be subserved." As stated by this court in *West v. Kansas Natural Gas Co.,* "the statute finds no justification in such purpose for its interference with private property" (221 U. S. 260).

Without stopping to review the other cases, it is sufficient here to say that the statute involved in each was sustained either upon the basis of protecting private correlative rights of one or more of the surface owners by preventing waste or other conduct of one or more of them injuriously affecting the rights of others of them in a common source of supply, or because one surface owner was wilfully destroying gas without putting the same to any beneficial use whatever under conditions injuriously affecting the rights of others in a common source of supply, or because the particular ordinance or statute was necessary for the protection of the public safety.

In the case at bar there is no room for any claim that the statute as applied to appellants is for the purpose of protecting the private correlative rights of other surface owners in a common source of supply, but on the contrary, under the admitted and undisputed facts shown by the record, the sole ground for the gas curtailment complained of is for the purpose of conserving the natural gas so curtailed for the future use and benefit of the general public as consumers, and under the admitted facts of this case the extent of the invasion of appellants' property rights is so great, so arbitrary, so oppressive and so unreasonable, that it goes too far under the police power of the state and requires the exercise of the power of eminent domain, with compensation to appellants (see pages 46-60 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm").

POINT G.

The Statute Involved Is Void for Uncertainty and Lack of a Sufficiently Definite Standard of Conduct Under the Due Process Clause of the Fourteenth Amendment.

This point is fully covered and thoroughly argued with abundant citations at pages 61-112 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm", where all of the arguments advanced by counsel for appellees as well as by the state courts are answered, and reference thereto without repetition here is made, in the interest of brevity.

We wish here merely to show that the statement contained in the opinion of the Supreme Court of California in *People v. Associated Oil Company,* that "In seven states of the Union legislation making unlawful the unreasonable waste of natural gas has been upheld," is erroneous (see page 29, Supplement to Brief of Appellee on Motion to Dismiss or Affirm). An examination of the statutes of the states there referred to will disclose that in not one of those states is there any statute like that in California which merely prohibits "the unreasonable waste of natural gas" without any definition, standard or guide as to what is intended to be prohibited. On the contrary, the statutes involved in those states were definite and specific in their terms as to what was intended to be prohibited, as will be shown by the following brief review:

Ohio Oil Company v. Indiana, 177 U. S. 190, 44 L. Ed. 729, involved the Indiana statute—which did not use the term "waste" at all. Under that statute it was made unlawful "to allow or permit the flow of gas or oil from any such well *to escape into the open air* without being con-

fined within such well or proper pipes or other safe receptacles, for a longer period than two days next after the oil or gas shall have been struck in such well." This is definite and specific.

In *Walls v. Midland Carbon Co.*, 254 U. S. 300, 65 L. Ed. 276, the statute was quite specific and definite in declaring that

> "'The use, consumption or burning of natural gas * * * without the heat therein contained being fully and actually applied and utilized for other manufacturing purposes or domestic purposes is hereby declared to be a wasteful and extravagant use of natural gas and shall be unlawful, when such gas well or source of supply is located within 10 miles of any incorporated town or industrial plant."
>
> 65 L. Ed. 280.

What could be more definite and specific?

In *State v. Lebow* (Kans.), 280 Pac. 773, the court held all the uncertainty was removed by the context of the statute. The first clause of the statute referred to the escape of oil refuse and salt water, using the words "in the immediate vicinity" of an oil well, and the second clause required it to be safely kept in pipe lines and tanks so as to prevent the escape thereof (see p. 176, middle of second column).

In *Oxford Oil Company v. Atlantic Oil Producing Co.*, 22 Fed. (2d) 597, an act of the Texas legislature passed in 1919 contained a provision that the railroad commission should make and enforce rules and regulations for the *drilling* of wells and preserving a record thereof, and providing that it shall be its duty to require such wells to be

drilled *in such manner as to prevent injury to adjoining property*, and to "prevent oil and gas and water from *escaping from the strata in which they are found into other strata,*" and to establish rules and regulations therefor (Laws of Texas, 1919, chapter 155). Thus the statute was definite and certain. Furthermore, the statute, unlike the one here, authorized the commission to establish, and it did establish, rules and regulations which provided in advance a definite standard for the public to go by. Such rules and regulations were limited to the above named specific purposes, so that definite guides and rules for the guidance of the commission were set forth in the statute and the commission not left to roam at large unguided and uncontrolled.

State v. Carson Carbon Company, 162 La. 781, 111 So. 162. The first section of Article VI of the Louisiana Constitution required the legislature to enact all laws necessary to protect, conserve and replenish the natural resources of the state. The court, referring to this constitutional provision, said:

> "* * * That does not mean that the legislature may not delegate to the Commissioner of Conservation the authority to ascertain and determine the *facts* according to which the conservation *laws enacted by the legislature* are to be applied and enforced."

It was claimed that the provisions of the statute authorizing the Commissioner of Conservation to fix and determine what percentage of natural gas produced by each well might be used in the manufacture of carbon black were unguided and uncontrolled. The court said.

> "* * * We have no occasion for deciding the question in this case. In authorizing the Commis-

sioner of Conservation to fix the percentage, in the second section of the Act 91 of 1922, *the legislature itself limited the percentage by declaring that it should be not less than 15 or more than 20 per cent of the potential capacity of any well.* Therefore, as far as the maximum allowance of 20 per cent goes, the legislature itself fixed it * * *."

111 So. 162, 165, 166.

Commonwealth v. Trent, 117 Ky. 34, 4 Ann. Cas. 209, 77 S. W. 390, was also definite and specific as to what was and what was not prohibited. The act provided that

"* * * any person * * * in possession * * * of any well in which petroleum, natural gas or salt water has been found, *shall, unless said product is sooner utilized, within a reasonable time, not, however, exceeding three (3) months from the completion of said well, in order to prevent said product wasting by escape, shut in and confine the same in said well until such time as it shall be utilized: provided, however, that this section shall not apply to gas escaping from any well while it is being operated as an oil well, or while it is used for any fresh or mineral water."*

77 S. W. 390.

In *Quinton Relief etc. Co. v. Corporation Commissioner of Oklahoma,* 224 Pac. 156, 101 Okla. 164, the phrase employed was "wasteful utilization of gas." The Oklahoma statute defined the word "waste" and provided that, in addition to its ordinary meaning, it should include the escape of natural gas in commercial quantities into the open air, the intentional drowning with water of a gas stratum capable of producing gas in commercial quantities, underground waste, permitting any natural gas well to

wastefully burn, and the wasteful utilization of such gas. The court held that the statute did not repeal a prior act in which the purposes for which natural gas may be utilized were defined. The court, reading both statutes together, held that since both the term "waste" and the term "utilization" had been defined by the statute the phrase "wasteful utilization" of natural gas did provide a definite standard. If the California statute had provided the purposes for which natural gas may be used, and had defined what shall constitute waste, as did the statute of Oklahoma, and had defined what constitutes "*unreasonable* waste," there would be no question of a lack of a definite rule or standard.

This concludes the states referred to by the Supreme Court of California as having statutes prohibiting "the unreasonable waste of natural gas." The foregoing analysis shows that none of the statutes used any such vague and indefinite expression, but on the contrary the language of each of the statutes was definite and certain. Yet so vague and uncertain is the California statute, and so flexible is the possible scope and limits of the expression "unreasonable waste of natural gas," that the Supreme Court of California has referred to *all* of the statutes of these other states as "statutes to prevent the unreasonable waste of natural gas." These statutes are instructive, however, as showing that it was not impossible or impractical for the legislature to enact a statute prescribing definitely a rule or standard whereby the citizens in this state could determine what is and what is not prohibited. The California statute is so broad and loose that it cannot be ascertained from the statute in advance

what may or may not be done. It leaves the subject wide open for any rule or standard which a jury, or the Supervisor of Oil and Gas, or the court, may later prescribe. This does not answer the test of valid legislation, for under all the authorities the mandate of the statute must be

> "so clearly expressed that any ordinary person can determine in advance what he may and may not do under it." (Judge Brewer in 35 Fed. 876.)

The California statute is so vague and indefinite as to what can and cannot be done under it that the owners and operators of oil and gas wells are put to the hazard of determining *in advance* and guessing at their peril what they can and can not do under the statute at the time they are called upon to act: (a) in putting down an oil well, at a cost of approximately $150,000; or (b) in deciding whether or not they could safely make a contract for future delivery of oil; or (c) in taking any other step of omission or commission. If they guess wrong they not only subject themselves to the penal sections of the statute (Sec. 21), but also to a prohibitory order of the Supervisor of Oil and Gas, under section 14a, or of a court, under section 14b, depending, not upon any standard or guide prescribed in the statute and known in advance, but upon a standard enacted later by a jury, or administrative officer, or a court, after the act has been committed, and as to which standard nothing can be known in advance. The penalty is just as severe and disastrous for all practical purposes whether it be penal in character or a prohibitory order requiring the shutting down or severe curtailment of the wells or inability to fulfill oil contracts, which results in far greater loss than any fine which might be imposed under the penal provisions of the statute.

Without attempting to review the many authorities cited in our former brief under this heading, it is sufficient here to cite extracts from only two of the opinions of this court:

In *Connally v. General Construction Co.*, 271 U. S. 385, 70 L. Ed. 322, 328, it is said:

> "* * * *And a statute which either forbids or requires the doing of an act in terms so vague that men of common intelligence must necessarily guess at its meaning and differ as to its application violates the first essential of due process of law.*"

In *Small v. American Sugar Refining Company*, 267 U. S. 233, this court said:

> "The defendant attempts to distinguish those cases because they were criminal prosecutions. But that is not an adequate distinction. *The ground or principle of the decisions was not such as to be applicable only to criminal prosecutions.* It was not the criminal penalty that was held invalid, but the exaction of obedience to a rule or standard which was so vague and indefinite as really to be no rule or standard at all. Any other means of exaction, such as declaring the transaction unlawful or stripping a participant of his rights under it, was equally within the principle of those cases. * * *"
>
> 267 U. S. 239.

In the recent opinion of a three-judge statutory federal court, *Champlin Refining Co. v. Corporation Commission of the State of Oklahoma*, decided August 5, 1931, and quoted in full in the issues of the United States Daily for August 15, 1931, and August 20, 1931, which case is pending in this court (Case No. 1014), both the majority

and minority opinions are agreed that the oil conservation statute of Oklahoma there involved is too indefinite and uncertain to be sustained as a penal statute under the due process clause of the Fourteenth Amendment. The Oklahoma statute, which is set out in full in note 1 of the opinion, prohibited the production of crude oil or petroleum "in such manner and under such conditions as to constitute waste," and by section 3 of the Act the term "waste" is defined as follows:

> "That the term 'waste' as used herein, in addition to its ordinary meaning, shall include economic waste, underground waste, surface waste, and waste incident to the production of crude oil or petroleum in excess of transportation or marketing facilities or reasonable market demands. The Corporation Commission shall have authority to make rules and regulations for the prevention of such wastes, and for the protection of all fresh water strata, and oil and gas bearing strata, encountered in any well drilled for oil."

We quote the following brief extract from the opinion:

> "The statute has a dual aspect: First, as a penal statute to prevent waste and to protect the coequal rights of the several owners of land situate over a common pool of oil and gas to take from the common source of supply; and second, a regulatory statute to be supplemented by rules, regulations and orders of the Commission to accomplish the same ends.
>
> "The penalties provided are for violations of the statute and no penalties are provided for violations of the rules and regulations promulgated by the Commission.
>
> "We are of the opinion that the statute is too indefinite and uncertain to be sustained as a penal statute. Smith v. Cahoon, Sheriff, 283 U. S. .....

An oil operator should not be required at the peril of severe criminal penalties to determine in the operation of his oil and gas wells whether he is committing economic waste or producing in excess of reasonable market demands because such terms are not defined in the act and are of uncertain and doubtful meaning. Likewise, a producer from a common source of supply should not be required to determine at the peril of such penalties whether he can operate at full production without committing economic waste or producing in excess of reasonable market demands.

"Furthermore, it is unreasonable to require an operator to choose between two approved methods of operation, the results of which cannot be forecast with precise accuracy, in dealing with the ordinary problems confronted in the drilling and operation of oil and gas wells, at the peril, if he makes the wrong choice, that some underground waste will result and he thereby become subjected to such severe penalties, under a statute which affords no guide for the operator under such circumstances. However, except in one particular hereinafter mentioned, the validity of the act as a penal statute is not before us."

Under the rule above quoted from *Small v. American Sugar Refining Company,* the same principles which induced the court to hold the statute void for uncertainty in its penal provisions should have induced it to also declare it void in its civil aspects, for the same principles apply to both. To the same effect, see

Cline v. Frink Dairy Co., 274 U. S. 445;

Hewitt v. Board of Medical Examiners, 148 Cal. 590;

Standard Chemical etc. Corp. v. Waugh, 231 N. Y. 51, 131 N. E. 566.

Having in mind the last statement of the Supreme Court of California as to the numerous viewpoints to be used in determining what constitutes "unreasonable waste of natural gas," quoted at page 71 and analyzed at pages 78-82 of our former brief, the reason for holding the California statute void for uncertainty and lack of a sufficiently definite standard or measure of conduct is much stronger than the Oklahoma case where at least some attempt is made to define the term "waste," but which, nevertheless, was held void for uncertainty. The California statute nowhere purports to vest any administrative officer, much less a court, with power to prescribe rules and regulations providing details as to what shall constitute waste, or for regulating the mode of the enforcement of the statute. If it had, it would not have aided the statute, for where the legislature itself does not prescribe a sufficient rule or standard of conduct, the power given to administrative officers to make rules and regulations cannot be used to supply the deficiency. (*In re Peppers*, 189 Cal. 682.) The power given to administrative officers to make rules and regulations is limited to the filling in of details of administration under a definite standard or guide which must be prescribed by the legislature. The standard cannot be supplied by either the executive or judicial branch of the state government.

Since all of the arguments advanced by the state courts and by counsel for appellees are fully answered by the argument, references to the record and citations of authority contained in our former brief (pages 61-107), it is respectfully submitted that the state statute is void upon its face under the due process clause of the Fourteenth Amendment.

POINT H.

The "Prima Facie Evidence" Clause of the Statute Violates the "Due Process" Clause of the Fourteenth Amendment.

The argument and citation of the previous decisions of the court set forth at pages 107-112 of "Appellants' Brief in Opposition to Motion to Dismiss or Affirm" sufficiently cover this point, reference to which is hereby made.

POINT I.

The Statute Involved, as Applied to Appellants, Unconstitutionally Impairs Appellants' Lease Contracts.

We have nothing to add to the discussion and citation on this point in our former brief (pages 112-114).

POINT J.

The Statute Involved, as Applied to Appellants, Denies to Appellants the Equal Protection of the Laws.

In addition to the argument and references to the record and the previous decisions of this court cited in our former brief on this point (pages 114-121), see:

Connolly v. Union Sewer Pipe Co., 184 U. S. 540;

Smith v. Cahoon (decided May 25, 1931), 283 U. S. ....., 75 L. Ed. 812,

and cases therein cited.

On the point that the statute unconstitutionally gives a majority in voting power of the operators power to control the nature and extent of the use to which other operators in the district may make of their property, see

Eubank v. Richmond, 226 U. S. 137;

Washington ex rel. Seattle Title Trust Co. v. Roberge, 278 U. S. 116, 121-122.

POINT K.

If Appeal Was Improvidently Sought and Allowed, Then Certiorari Should Be Granted Upon the Papers Whereon the Appeal Was Allowed.

In the interest of brevity, we refer to what has already been said on this point in our former brief (pages 121-122).

Conclusion.

For the reasons set forth in "Appellants' Brief in Opposition to Motion to Dismiss or Affirm," supplemented by what we have added in this brief, appellants respectfully submit that the state statute of California is not only void upon its face, because repugnant to the due process clause of the Fourteenth Amendment, in the various particulars set forth, but also because the operation and effect of the state statute as applied to appellants is such that it violates the due process, equal protection and contract, clauses of the federal constitution. The judgment of the state court should therefore be reversed.

Respectfully submitted,

ROBERT B. MURPHEY,

ASA V. CALL,

Counsel for Appellants and Petitioners.

Due service of the within Brief is hereby acknowledged this.....day of September, A. D. 1931.

_____

_____

Attorneys for Appellees.

FILE COPY

APR 13
CHARLES ELMORE

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1930.

No. [redacted] 43

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation; and Ambassador Petroleum Company, a corporation,

Appellants.

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the judges thereof,

Appellees.

MOTION BY APPELLEES TO DISMISS APPEAL OR AFFIRM JUDGMENT BELOW.

U. S. WEBB,
Attorney-General, State of California,
JAMES S. BENNETT,
Attorney for Director of Natural Resources, State of California,
Attorneys for Appellees.

Parker, Stone & Baird Co., Law Printers, Los Angeles.

IN THE

SUPREME COURT

OF THE

UNITED STATES

OCTOBER TERM, 1930.

Bandini Petroleum Company, a corporation, et al.,

Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the judges thereof,

Appellees.

MOTION BY APPELLEES TO DISMISS APPEAL OR AFFIRM JUDGMENT BELOW.

Come now the appellees in the above entitled cause and move that the appeal be dismissed, or in the alternative the judgment below be affirmed.

Facts on Which the Motion Is Based.

The California Legislature in 1929 passed an act declaring the "unreasonable waste" of natural gas to be unlawful, and placed the operators of oil and gas wells

on notice by declaring that the release of natural gas into the air shall be *prima facie* evidence of unreasonable waste. The act of the Legislature authorized the Director of Natural Resources, in the name of the People of the State of California, to maintain an action in equity to restrain the unreasonable waste of natural gas. Pursuant to this Act the Director of Natural Resources commenced an action in the appellee Superior Court against some forty-three defendants operating oil and gas wells in the Santa Fe Springs Oil Field in the county of Los Angeles. In response to an order to show cause the defendant-appellants appeared, and after an extended hearing the Superior Court granted a temporary injunction on March 19, 1930. On application this temporary injunction was modified by order of date March 28, 1930. On April 9, 1930, defendant-appellants applied to the District Court of Appeal of the state of California and obtained an alternative writ of prohibition directed to the Superior Court out of which the temporary injunction had been granted. The District Court of Appeal on submission denied the writ of prohibition. The Supreme Court of the state of California denied a hearing, and the order denying the writ of prohibition became final in the state courts on January 28, 1931. The appeal to this court is from the final order in the District Court of Appeal denying the writ of prohibition so sought to prevent the appellee Superior Court enforcing the temporary injunction pending the trial of the action in that court. No substantial Federal question is involved in the appeal. The appeal should be dismissed or the judgment below affirmed on each of the following grounds:

1. The appellee court of equity has jurisdiction by preliminary injunction to preserve the subject matter of the action until a trial may be had and the issues of fact and law determined.

2. Jurisdiction in equity includes the power to determine wrongly as well as the power to determine rightly. Error is to be corrected by appeal and not by writ of prohibition.

3. Every requirement of due process of law under the Constitution of the United States is met by a trial on the merits in a court of general jurisdiction with the right of appeal to the Supreme Court of the state. This the California statutes provide.

4. The right of a state to prevent the waste of natural gas by legislation enacted in the exercise of the police power has been established by decisions in this court. The opinions of this court in these cases have become a part of the jurisprudence of all the oil and gas producing states with the exception of Montana.

5. The construction of the statutes of California is for the courts of last resort of that state.

6. The definition of property rights in land is a matter of local law.

7. The statute does not impair the obligation of appellants' lease contracts.

8. The California statute as construed by its courts of last resort contains as clear a definition of the prohibited unreasonable waste of natural gas as the nature of the subject matter will permit.

9. The operators of oil and gas wells are put on notice by the provision of the statute that the release of any gas is *prima facie* evidence of unreasonable waste.

10. There is no substantial Federal question involved in the appeal.

The public policy of the state of California in the regulation of a great natural resource is suspended by a *supersedeas* pending a decision the appeal in this court. A speedy conclusion is accordingly urged.

Respectfully submitted,

U. S. WEBB,
Attorney-General, State of California,
JAMES S. BENNETT,
Attorney for Director of Natural Resources, State of California,
Attorneys for Appellees.

Due service of the within Brief is hereby acknowledge this.....day of April, A. D. 1931.

_____

_____

Attorneys for Appellants.

FILE COPY

APR 13 193
CHARLES ELMORE CRO
CLE

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1930.

No.... 43

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation; and Ambassador Petroleum Company, a corporation,

Appellants.

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the judges thereof,

Appellees.

BRIEF OF APPELLEES ON MOTION TO DISMISS APPEAL OR AFFIRM JUDGMENT BELOW.

U. S. WEBB,
Attorney-General, State of California,
JAMES S. BENNETT,
Attorney for Director of Natural Resources, State of California,
837 Van Nuys Bldg., Los Angeles, California,
Attorneys for Appellees.

Parker, Stone & Baird Co., Law Printers, Los Angeles.

TABLE OF CONTENTS.

PAGE

I. The California Oil and Gas Conservation Act of 1929 and the Opinions of the Courts of Last Resort of That State Construing the Act 3

II. Judicial Notice Taken of the Physical and Economic Laws Governing Oil and Gas. Appendices to Refresh Judicial Knowledge 5

III. Statement of Case 6

IV. Argument 12

Summary of the Argument 12

Point A—Prohibition Is Not Appellants' Remedy 14

Point B—The Statute Provides an Adequate Remedy in a Court of Equity 17

Point C—The Right of the State to Prevent Waste in the Production of Gas and Oil Is Established by Decisions in This Court 17

Point D—The Construction of the Statutes of California Is for the Courts of Last Resort of That State 21

Point E—Unreasonable Waste Is a Question of Fact Properly Left to the Trial Court and Is a Sufficient Standard to Guide the Judicial Judgment of That Court 23

Point F—There Is No Substantial Federal Question Involved in This Appeal 29

TABLE OF CASES AND AUTHORITIES CITED.

PAGE

Ambassador Petroleum Co. v. Superior Court, 208 Cal. 667..... 23
Bacon v. Walker, 204 U. S. 313..... 17
Bandini v. Superior Court..... 24
Bevins v. State of Iowa, No. 574, October Term, 1930.....14, 29
Bureau of Mines Report, "Natural Gas in 1927"..... 10
C. C. P., Subdiv. 2, Sec. 963..... 15
Cal. Const., Sec. 4, Art. VI..... 15
Cal. Const., Sec. 5, Art. VI..... 14
California Oil and Gas Conservation Act of 1929, Sec. 8b.....3, 4
California Oil and Gas Conservation Act of 1929, Sec. 14b..... 4
Coffin Bros. & Co. v. Bennett, 277 U. S. 29..... 17
Dr. Miles Med. Co. v. John D. Park & Sons Co., 220 U. S. 373, 405 26
Edward Hines Yellow Pine Trustees v. Martin, 268 U. S. 458.. 22
Ex parte Daniels, 183 Cal. 636, 643..... 26
Ex parte Oklahoma, 220 U. S. 198..... 17
Federal Oil Conservation Board Report III..... 10
Fox River Paper Co. v. Railroad Com. of Wis., 274 U. S. 651.. 22
Hill v. Smith, 260 U. S. 592..... 28
Jacobson v. Massachusetts, 197 U. S. 11, 39..... 24
Kendall v. Foulks, 180 Cal. 171..... 15
Lehigh Valley R. Co. v. Board of Public Utility Comrs., 278 U. S. 34..... 17
Liberty Warehouse Co. v. Burley T. G. Co-op. M. Assn., 276 U. S. 71..... 6
Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61.....12, 22
Los Angeles Farming & M. Co. v. Los Angeles, 217 U. S. 217.. 22
Marrs v. City of Oxford, 280 U. S. 573.....14, 30
McCord v. Oakland Q. M. Co., 64 Cal. 134..... 27
Missouri v. Taylor, 266 U. S. 200..... 16
Mt. St. Mary's Cemetery Assn. v. Mullins, 248 U. S. 501.....9, 23
Mt. Vernon-Woodberry etc. Co. v. Alabama I. P. Co., 240 U. S. 30.....16, 30
Ohio Oil Co. v. Indiana, 177 U. S. 190.....12, 19, 21, 27

PAGE

Ohio *ex rel.* Bryant v. Akron Metrop. Pk. Dist., 281 U. S. 74 ..... 17, 18, 23
O'Neil v. Northern Colorado Irr. Co., 242 U. S. 20 23
Oxford Oil Co. v. Atl. Oil Prod. Co., 277 U. S. 585 ..... 14, 30
Patterson v. Colorado, 205 U. S. 454 23
People v. Associated Oil Co., *et al.*, 80 Cal. Dec. 607 ..... 4, 5, 6, 15, 20, 27
Pierce Oil Corp. v. Hope, 248 U. S. 498 ..... 9, 29
Quong Ham Wah Co. v. Industrial Accident Com., 255 U. S. 445 ..... 14, 29
Sauer v. New York, 206 U. S. 535 22
Schollenberger v. Pennsylvania, 171 U. S. 1 6
Standard Oil Co. of N. J. v. U. S., 221 U. S. 1, 63-64 26
Stats. Cal. 1923, p. 750 15
Swift & Co. v. United States, 276 U. S. 311 16
Tracy v. Ginzberg, 205 U. S. 170 23
Truck Owners etc. Inc. v. Superior Court, 194 Cal. 146 15
Tulare Irr. Dist. v. Superior Court, 197 Cal. 649 14
United States v. Alford, 274 U. S. 264 28
United States v. Wurzbach, 280 U. S. 396, 399 28
Walls v. Midland Carbon Co., 254 U. S. 300 ..... 12, 19, 22

IN THE

SUPREME COURT

OF THE

UNITED STATES

OCTOBER TERM, 1930.

Bandini Petroleum Company, a corporation, et al.,

Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the judges thereof,

Appellees.

BRIEF OF APPELLEES ON MOTION TO DISMISS APPEAL OR AFFIRM JUDGMENT BELOW.

I.

The California Oil and Gas Conservation Act of 1929 and the Opinions of the Courts of Last Resort of That State Construing the Act.

The appeal to this court challenges the validity under the Constitution of Section 8b of the California Oil and Gas Conservation Act of 1929, reading as follows:

> "The unreasonable waste of natural gas by the act, omission, sufferance or insistence of the lessor, lessee or operator of any land containing oil or gas, or both, whether before or after the removal of gasoline from such natural gas, is hereby declared to be opposed to the public interest and is hereby prohibited and declared to be unlawful. The blowing, release or escape of natural gas into the air shall be *prima facie* evidence of unreasonable waste."

The act (Sec. 14b) secured appellants a hearing in a court of equity having general jurisdiction.

All of the sections of the Act mentioned in appellants' petition for appeal to this court [R. p. 672], together with other sections of the Act considered pertinent by appellees are set out as Appendix A in the printed Supplement to this brief at page 3.

The opinion of the District Court of Appeal of California, of date November 29, 1930, stating the facts of the case and the reasons for the order appealed from to this court has not been officially reported. The opinion is unofficially reported in 63 Cal. App. Dec. 1175, pamphlet edition of December 10, 1930. A copy of the opinion is brought to this court [R. p. 333], appearing a second time in the record [R. pp. 643 to 671].

The Supreme Court of California denied a writ of supersedeas directed to the same preliminary injunction sought to be reviewed here on this appeal. The opinion has not been officially reported, but may be found under the title *People v. Associated Oil Co., et al.*, L. A. No. 12311, decided in bank December 3, 1930. A copy of this opinion is printed in Supplement to this brief, page 19, as Appendix B. The opinion is unofficially

reported in 80 Cal. Dec. 607, pamphlet edition of December 9, 1930.

The preliminary injunction in this case was appealed to the Supreme Court of California by defendants other than the appellants here, and there sustained. Opinion filed March 26, 1931, and not officially reported. A copy of this opinion is printed in Supplement to this brief at page 45 as Appendix C.

The Supreme Court of California there said:

> "We reiterate that the legislation in question has lawfully vested in the Superior Court the power to determine what wastage of gas in the production of oil is reasonable or unreasonable. *Whether such wastage is reasonable or unreasonable is a question of fact* and should be determined in view of the necessity of one landowner to make productive use of his parcel, in view of the equal right of the adjoining owners not to be deprived of correlative production from their parcels, and in view of the right of the public to prevent the waste of that which cannot be replaced." [*People v. Associated Oil Co., et al.*, decided March 26, 1931, App. "C." Supp. p. 50.]

II.

Judicial Notice Taken of the Physical and Economic Laws Governing Oil and Gas. Appendices to Refresh Judicial Knowledge.

The Supreme Court of California took judicial notice of the condition and development of the petroleum industry and the physical and economic laws governing oil and gas production, and refreshed its judicial knowledge by an examination of scientific works and encyclopedic

articles [*People v. Associated Oil Co., et al.*, on supersedeas, Supp. p. 33]. The rule is the same in this court (*Schollenberger v. Pennsylvania*, 171 U. S. 1, 9).

Judicial knowledge will also be taken of current events, and from this source the court will know the conditions in the oil and gas industries at the time of the enactment of the Oil and Gas Conservation Act (*Liberty Warehouse Co. v. Burley T. G. Co-Op. M. Assn.*, 276 U. S. 71, 93).

For the convenience of the court there appears in the Supplement to this brief the following:

APPENDIX D—Quotations from Report IV of the Federal Oil Conservation Board;

APPENDIX E—Quotation from Report III of the Federal Oil Conservation Board;

APPENDIX F—Reprint of Table from Article Entitled "GAS, *Natural*" New International Year Book 1929, p. 320;

APPENDIX G—Quotation from article entitled "GAS, *Natural*", Americana, Vol. 12, p. 302, Edition of 1927;

APPENDIX H—Copy of "NATURAL GAS IN 1927", Department of Commerce, Bureau of Mines Report.

III.

Statement of Case.

The District Court of Appeal of California, in its opinion on the order appealed from, said:

> "This is an original prohibition proceeding. The petitioners seek to prevent the respondent court from enforcing a preliminary injunction and order modifying the same and also to check any further order or proceeding against them in an action pending in the

respondent court entitled People of the State of California on relation of Fred G. Stevenot, Director of Natural Resources of the State of California v. Associated Oil Company, *et al.*, which action was brought for the purpose of enjoining all of the defendants therein named from unreasonably wasting natural gas from their wells in the Santa Fe Springs oil field. On March 19, 1930, after hearing the parties to the action, the court granted a temporary injunction limiting and defining the amount of gas which the defendants would be allowed to permit to escape into the air from their wells in the field mentioned. On March 28, 1930, the court made another order somewhat relaxing the terms of the injunction *pendente lite*. It is asserted by petitioners that they have been irreparably injured and damaged by attempting to curtail the production of natural gas; that there is no market for a large part thereof and that if they are to be allowed as they claim it is their right, to employ the gas as a lifting power to raise the oil from below the surface they must of necessity permit a portion thereof to escape into the air; that prior to the temporary injunction they were producing 19,554 barrels of oil per day but that operating most efficiently under the amount of gas allowed to be used by the modified order they cannot possibly produce more than 10,211 barrels per day." [R. pp. 333-334.]

The preliminary injunction of the appellee Superior Court recited:

"The Court having read the verified complaint and the affidavits in support of the relief prayed for in said complaint, and having read the verified answers of defendants on file herein and the affidavits filed on behalf of certain defendants, and having taken testimony, both oral and documentary, in open court and having heard the attorney for plaintiffs and the attorneys for the defendants appearing herein, the Court finds that no sufficient cause has been shown why a preliminary injunction should not be

issued as prayed for in said complaint, and as hereinafter provided, and the Court having considered the law and the premises *finds* that there appears to be an unreasonable waste of natural gas in the Santa Fe Springs Oil Field; that to preserve the subject matter of the action to abide the decree of the Court at the conclusion of the trial a preliminary injunction is necessary at this time; that the evidence available to the Court at this time shows that the unreasonable waste of natural gas in said field may be substantially reduced and that the equities of all parties may be fairly conserved by a preliminary injunction which will limit the waste of gas by restricting the production thereof to a quantity reasonably in excess of the present outlets for beneficial use above ground, require the extraction of gasoline from the gas produced in the field; that accordingly for the purposes of this order, the total gas outlets for all uses with a reasonable tolerance to take care of fluctuating demands and the necessary waste is taken at approximately two hundred eighty-five million (285,000,000) cubic feet of gas each day, and the estimated potential production oil is taken at two hundred thirty-seven thousand ~~four~~ five hundred ~~twenty-two~~ seventy-six (~~237,422~~) (237,576) (W. H.) barrels each day distributed among leases and other operating property units as shown in the schedule hereafter set out; and that sufficient cause has been shown for the extraordinary relief of a preliminary injunction pending the trial of the action on the merits, and the entry of a final judgment herein." [R. pp. 295-296.]

It was then provided that the defendants be enjoined until the further order of the court:

"1. From blowing, releasing or permitting any natural gas to escape into the air from any well or wells in the Santa Fe Springs Oil Field before the removal of the gasoline from such natural gas.

"2. From operating any well producing natural gas in the Santa Fe Springs Oil Field except while

exercising a high degree of care in the selection and adjustment of appliances and in the use thereof for the purpose of keeping each producing well in its 'optimum gas-oil ratio'—the term 'optimum gas-oil ratio' being defined as the smallest number of cubic feet of gas which can be produced with each barrel of oil from the same well at the same time.

"3. From producing more net formation gas on the average day of each seven (7) day period from any lease or other property unit than is set forth in the 'Allowed Gas Production' column in the schedule following:" [R. p. 297.]

The name of each operator of an oil well, the designation of each leasehold or other operating property on which it is situated is then set out, and opposite thereto the estimated potential in barrels of oil per day and the allowed gas production in daily average thousands of cubic feet as to each property. [R. pp. 298 *et seq.*]

The appellants were at all times wasting to the air in excess of 26,000,000 cubic feet of gas each average day [aggregate of items, Schedule Exhibit to Complaint following R. p. 57]. This waste to the air by appellants was from fifty to sixty per cent of their total gas production. The cut in gas production required by the order resulted in a cut of approximately fifty per cent in oil production, which was the general average throughout the field.

These findings of fact are matters of state law, and the findings of the appellee Superior Court being satisfactory under its procedure to the California court of last resort are conclusive here (*Mt. St. Mary's Cemetery Assn. v. Mullins*, 248 U. S. 501, 503; *Pierce Oil Corp. v. Hope*, 248 U. S. 498).

By judicial knowledge the appellee Superior Court knew, and this Court knows: That the total consumption of natural gas in the United States (including residue gas from natural gasoline plants) by industrial users in 1927 amounted to 1,149,208,000,000 cubic feet, an increase of 1926 of 12 per cent, of which 212,364,000,000 cubic feet was produced and delivered to consumers in California. That there were 745,740 domestic consumers of natural gas in California in that year [Appendix H, Supp. p. 90, "Natural Gas in 1927" Bureau of Mines Report]. The following year (1928), in number of domestic consumers of natural gas, California was *second,* being surpassed only by Ohio; in the consumption of natural gas and field drilling and operating plants California was *second,* being exceeded only by Oklahoma; in the use of natural gas for fuel at petroleum refineries California was *third,* being exceeded by Texas and Louisiana; and in the use of natural gas for all industries other than carbon black California was *third,* being exceeded only by Texas and Pennsylvania [Appendix F, Supp. p. 81, New International Year Book, 1929].

The quotation from Report III of the Federal Oil Conservation Board shows that the California Oil and Gas Conservation Act of 1929 was adopted pursuant to careful investigation of what was required to regulate the industry conducted by a committee of nine appointed by the Federal Oil Conservation Board [Supp. p. 67].

On the hearing before the appellee Superior Court there was satisfactory evidence that during the year 1928 over 77,000,000,000 cubic feet of natural gas were wasted into the air from the sub-surface oil and gas zones in the state

of California derived from the operation of oil wells [Affidavit of Brown, R. p. 91; Supp. p. 20].

The natural gas so wasted to the air had the energy equivalent of 3,850,000 tons of good coal, 20,000 cubic feet of natural gas being the equivalent of a ton of good coal [Supp. pp. 84-85, Appendix G].

There was a large use of natural gas, and many domestic consumers, industrial plants, and public buildings within the vicinity of Santa Fe Springs Oil Field depended upon a continuous supply of natural gas for heat and power and the use was being extended [Affidavit of Brown, R. p. 92].

Because of the increase in the production of oil since that time a proportional increase in the wastage of natural gas was taking place, so that in the Santa Fe Springs Oil Field alone there was at the time of the commencement of the action in appellee Superior Court a wastage of natural gas to the extent of approximately 500,000,000 cubic feet of gas *per day* [Complaint, Exhibit AA, following R. p. 57]. See opinion Supreme Court of California to this point [Supp. p. 20]. This was a waste of energy equivalent to 25,000 tons of coal a day.

The opening of a well into any oil and gas zone disturbs the pressure of the gas in all parts of the zone, and the withdrawal of gas reduces the gas pressure throughout the whole of the zone so that where two wells produce from the same zone if one produces a barrel of oil with 500 cubic feet of gas and the other a barrel of oil with 1,000 cubic feet of gas, the first well is much more efficient than the second well [Affidavit of Gaylord, R. p. 81].

In their opinions in the case sustaining the orders of appellee court the District Court of Appeal of California and the Supreme Court of California each said that in determining the nature of the landowner's interest and

right to perfect title to oil and gas in the strata beneath the ground through wells drilled from the surface they were following the opinions of this court in *Ohio Oil Co. v. Indiana*, 177 U. S. 190; *Walls v. Midland Carbon Co.*, 254 U. S. 300; and *Lindsley v. Natural Carbonic Gas Co.*, 220 U. S. 61.

The standard of "unreasonable waste" is firmly imbedded in the law of waters of California, where the owners of land over percolating waters or riparian to a stream are recognized as having correlative rights to the use, but not to "unreasonable waste", from the common source of supply. This rule was applied by analogy as sufficient to enable the appellee Superior Court sitting in equity to determine in each case the extent of the "unreasonable waste" of natural gas fixed by statute as the standard of the prohibited waste. The opinion of the California District Court of Appeal [R. pp. 355 *et seq.*], and the opinions of the Supreme Court of California are largely devoted to these questions [Supp. pp. 33-36 and 50, Appendices B and C].

IV.

ARGUMENT.

Summary of the Argument.

POINT A.

Prohibition is Not Appellants' Remedy.

The appellee court of equity has jurisdiction by preliminary injunction to preserve the subject matter of the action until a trial may be had and the issues of fact and law determined. Jurisdiction in equity includes the power to determine wrongly as well as the power to determine rightly. Error is to be corrected by appeal and not by writ of prohibition.

POINT B.

The Statute Provides an Adequate Remedy in a Court of Equity.

Every requirement of due process of law under the Constitution of the United States is met by a trial on the merits in a court of general jurisdiction with the right of appeal to the Supreme Court of the state. This the California statutes provide.

POINT C.

The Right of the State to Prevent Waste in the Production of Gas and Oil is Established by Decisions in This Court.

The right of a state to prevent the waste of natural gas by legislation enacted in the exercise of the police power has been established by decisions in this court. The opinions of this court in these cases have become a part of the jurisprudence of all the oil and gas producing states with the exception of Montana.

POINT D.

The Construction of the Statutes of California is for the Courts of Last Resort of That State.

The definition of property rights in land is a matter of local law. The statute does not impair the obligation of appellants' lease contracts, as the leases contained the implied covenant that the lessees shall use the property lawfully.

POINT E.

Unreasonable Waste is a Question of Fact Properly Left to the Trial Court and is a Sufficient Standard to Guide the Judicial Judgment of That Court.

The California statute as construed by its courts of last resort contains as clear a definition of the prohibited unreasonable waste of natural gas as the nature of the

subject matter will permit. When the oil and gas operator is told by the statute the "release or escape of natural gas into the air shall be *prima facie* evidence of unreasonable waste" he is put on notice that when he permits any natural gas to escape into the air he must justify at least by the production of some evidence tending to show that the release or escape of the natural gas by him was reasonable under the circumstances. It is not necessary that this provision of the statute change the burden of proof in order to bring this appeal within the rule of *Bevins v. State of Iowa,* No. 574, October Term, 1930. Opinion in this court February 2, 1931, not yet officially reported.

POINT F.

There is No Substantial Federal Question Involved in the Appeal.

Quong Ham Wah Co. v. Industrial Accident Com., 255 U. S. 445, 448;

Oxford Oil Co. v. Atl. Oil Prod. Co., 277 U. S. 585;

Marrs v. City of Oxford, 280 U. S. 573;

Bevins v. State of Iowa, No. 574, October Term, 1930. Opinion by this court February 2, 1931.

POINT A.

Prohibition is Not Appellants' Remedy.

The appellee Superior Court is a court of general equity jurisdiction under the Constitution of the state of California (Cal. Const., Sec. 5, Art. VI; *Tulare Irr. Dist. v. Superior Court,* 197 Cal. 649, 660).

The injunction sought to be vacated by this appeal is a preliminary injunction subject to modification on application to the appellee court, and was granted to maintain the subject matter of the action to respond to the final judgment. Such a preliminary injunction is appealable under the laws of the state of California to the Supreme Court of that state (Subdiv. 2, Sec. 963, C. C. P.; Stats. Cal. 1923, p. 750; Sec. 4, Art. VI, Cal. Const.).

Upon sufficient cause being shown, the Supreme Court of the state will grant a writ of supersedeas restraining the enforcement of the preliminary injunction in the Superior Court until the appeal can be heard [*People v. Associated Oil Co., et al.*, decided Dec. 3, 1930, Supp. p. 24, Appendix B].

A preliminary injunction does not amount to an adjudication of the ultimate rights in controversy, but is granted to preserve the *status quo* pending the outcome of the case on its merits, so that the subject matter may respond to the final judgment (*Kendall v. Foulks,* 180 Cal. 171).

As said by the Supreme Court of California in denying another writ of prohibition in *Truck Owners etc. Inc. v. Superior Court,* 194 Cal. 146, 155:

> "We are not here concerned with the nature of the right which the said plaintiff is seeking to enforce. If the Superior Court has jurisdiction to entertain the action it has the power to define the right sought to be protected. Nor are we here concerned with the correctness of the judgment of the Superior Court. The jurisdiction of the court is the power to hear and determine. It is not contingent upon the regularity of its exercise nor upon the correctness of the decision (*Lange v. Superior Court,* 11 Cal. App. 1

(103 Pac. 908)). If the judgment of the Superior Court be incorrect it may be reversed on appeal, but not on prohibition (Sutter-Butte Canal Co. v. Superior Court, 183 Cal. 324 (191 Pac. 529))."

This court has laid down the same rules and for the same reasons. See

Swift & Co. v. United States, 276 U. S. 311; and
Mt. Vernon-Woodberry etc. Co. v. Alabama I. P. Co., 240 U. S. 30.

Where the state court of final authority has denied a writ of prohibition and thereby sustained the jurisdiction of the trial court to hear and determine the validity of the state statute it is a rule of law in this court that the denial of the writ of prohibition will be sustained (*Missouri v. Taylor,* 266 U. S. 200; *Mt. Vernon-Woodberry etc. Co. v. Alabama I. P. Co.,* 240 U. S. 30).

"Another answer to this argument of petitioners is that having determined that the court has the jurisdiction to determine what is an unreasonable waste, we cannot interfere by the writ of prohibition to deprive its judgment of effect. And we here direct attention to the determination of the respondent court that 'there appears to be an unreasonable waste of natural gas in the Santa Fe Oil Field', and 'that the evidence available * * * shows that the unreasonable waste of natural gas in said field may be substantially reduced and that the equities of all parties may be fairly conserved by a preliminary injunction which will limit the waste of gas by restricting the production thereof to a quantity reasonably in excess of the present outlets for beneficial use above ground, etc., etc.' It does not appear from the facts presented to us that insofar as the particular case before us is concerned the court exceeded its jurisdiction in finding as we have already quoted." [Opinion on Order Appealed From, R. pp. 362-363.]

POINT B.

The Statute Provides an Adequate Remedy in a Court of Equity.

This court requires that the aggrieved party must have his day in a court of general jurisdiction to question the validity of the state statute under the Federal Constitution (*Lehigh Valley R. Co. v. Board of Public Utility Comrs.*, 278 U. S. 34, 38).

A hearing in the appellee Superior Court, a court of general jurisdiction with equity powers, meets every requirement of the Federal Constitution (*Ohio ex rel. Bryant v. Akron Metrop. Pk. Dist.*, 281 U. S. 74, 80; *Coffin Bros. & Co. v. Bennett*, 277 U. S. 29, 31).

This right to a judicial hearing having been secured to appellants, a writ of prohibition could not be issued to restrain the appellee Superior Court from exercising its jurisdiction in equity pending a trial of the action, "without disregarding the plain statutory provisions providing means for reviewing the action of the court which is complained of, and which, if availed of, would afford complete and adequate remedy" (*Ex parte Oklahoma*, 220 U. S. 198).

POINT C.

The Right of the State to Prevent Waste in the Production of Gas and Oil is Established by Decisions in This Court.

In *Bacon v. Walker*, 204 U. S. 313, 315, *et seq.*, Mr. Justice McKenna, speaking for this court, said:

> "The laws and policy of a state may be framed and shaped to suit its conditions of climate and soil.

> Illustrations of this power are afforded by recent decisions of this court. In *Clark v. Nash,* 198 U. S. 361, 49 L. Ed. 1085, 25 Sup. Ct. Rep. 676, a use of property was declared to be public which, independent of the conditions existing in the state, might otherwise have been considered as a private. So, also, in *Strickely v. Highland Boy Gold Min. Co.,* 200 U. S. 527, 50 L. Ed. 581, 26 Sup. Ct. Rep. 301. In the first case there was a recognition of the power of the state to deal with and accommodate its laws to the conditions of an arid country and the necessity of irrigation to its development. * * * Of pertinent significance is the case of *Ohio Oil Co. v. Indiana,* 177 U. S. 190, 44 L. Ed. 729, 20 Sup. Ct. Rep. 576. There a statute of the state of Indiana was attacked, which regulated the sinking, maintenance, use, and operation of natural gas and oil wells. *The object of the statute was to prevent the waste of gas.* The defendants in the action asserted against the statute and ownership of the soil and the familiar principle that such ownership carried with it the right to the minerals beneath and the consequent privilege of mining to extract them. The principle was conceded, but it was declared inapplicable, as ignoring the peculiar character of the substances—oil and gas—with which the statute was concerned."

These repeated decisions negative any substantial Federal question (*Ohio ex rel. Bryant v. Akron Metrop. Pk. Dist.,* 281 U. S. 74, 79).

In the opinion of the District Court of Appeal of California, from which this appeal is taken, it is said:

> "When the rights of one impinge upon the rights of others the state may interpose for the purpose of adjusting and regulating the enjoyment of those rights. This is, in a large part at least, the foundation of all the authorities which support the power of the state to regulate the production of oil and gas. In Ohio Oil Co. v. Indiana, 177 U. S. 190 (44 L. Ed.

729), it is said: 'No one owner of the surface of the earth, within the area beneath which the gas and oil move can exercise his right to extract from the common reservoir, in which the supply is held, without to an extent, diminishing the source of supply as to which all other owners of the surface must exercise their rights. The waste by one owner, caused by a reckless enjoyment of his right of striking the reservoir, at once, therefore, operates upon the other surface owners,' and '* * * (T)he surface proprietors within the gas field all have the right to reduce to possession the gas and oil beneath. They could not be absolutely deprived of this right which belongs to them without a taking of private property. *But there is a coequal right in them all to take from a common source of supply the two substances which in the nature of things are united, though separate.* It follows from the essence of their right and from the situation of the things as to which it can be exerted, that the use by one of his power to seek to convert a part of the common fund to actual possession may result in an undue proportion being attributed to one of the possessors of the right to the detriment of the others, *or by waste by one or more to the annihilation of the rights of the remainder.* Hence it is that the legislative power, from the peculiar nature of the right and objects upon which it is to be exerted, can be manifested for the purpose of protecting all the collective owners, by securing a just distribution, to arise from the enjoyment, by them of their privilege to reduce to possession, and to reach the like end by preventing waste.'"

Twenty years after this court decided the case of *Ohio Oil Co. v. Indiana, supra,* and in the last opinion of this court dealing directly with a statute of a state passed to prevent the waste of natural gas, this court in sustaining the statute of Wyoming, in *Walls v. Midland Carbon Co.,* 254 U. S. 300, said:

"And in this consideration it is more important to consider not for what a particular owner uses the gas, but the proportion of his use to that of others; or it may be the prevention of use by others; (p. 319) * * *

"The power is exerted to prohibit an extravagant or wasteful or disproportionate use of the natural gas of the state. * * * It is for the state to determine not only if any conservation be necessary, but the degree of it; and certainly the companies cannot complain if the state has not exerted its full power. (p. 323) * * *

"And there is great disproportion between the gas and the product, and necessarily **there was presented to the judgment and policy of the state a comparison of utilities which involved as well the preservation of the natural resources of the state,** and the equal participation in them by the people of the state. And the duration of this utility was for the consideration of the state, and we do not think that the state was required by the Constitution of the United States to stand idly by while these resources were disproportionately used, **or used in such way that tended to their depletion, having no power of interference."** (p. 324.)

The opinions of this Court in these cases have become a part of the jurisprudence of all the oil and gas producing states with the exception of Montana, so that the Supreme Court of the state of California in sustaining the validity of the Act of that state here under discussion was able, in *People v. Associated Oil Co., supra,* [Supp. p. 29], to say:

"The generally accepted view therefore is that the property right of the owner or lessee of land in and to the gas and oil beneath the surface is not an absolute one. Such substances, because of their peculiarity in the natural state, partake more of the nature of common property, title to which becomes

absolute when they are captured and reduced to possession. Because of their peculiar nature the public has a definite interest in their preservation from waste and destruction. This is true because of their character as natural resources and also because the public interest has attached by virtue of positive statutory law or by court judgment independent of statute. In seven states of the Union legislation making unlawful the unreasonable waste of natural gas has been upheld: Indiana: Indiana v. Ohio Oil & Gas Co., 150 Ind. 21, 47 L. R. A. 627; Ohio Oil Co. v. Indiana, 177 U. S. 190, 44 L. Ed. 729. Kentucky: Commonwealth v. Trent, 117 Ky. 34, 4 Ann. Cas. 209. Wyoming: Walls v. Midland Carbon Co., 254 U. S. 300, 65 L. Ed. 276. Oklahoma: Quinton Relief O. & G. Co. v. Corp. Com., 101 Okla. 164, 224 Pac. 156. Louisiana: State v. Carson Carbon Co., 162 La. 781, 111 So. 162. Texas: Oxford Oil Co. v. Atlantic Oil P. Co., 22 Fed. (2d) 597; certiorari denied United States Supreme Court, 72 L. Ed. 1000; R. R. Com. of Texas v. Bass, 10 S. W. (2d) 586; Magnolia Petroleum Co. v. Stroud, 3 S. W. (2nd) 462. Kansas: State v. Lebow, 280 Pac. 773, 775; Marrs v. City of Oxford, 32 Fed. (2d) 134. Rehearing denied Circuit Court of Appeals, May 17, 1929. Certiorari denied United States Supreme Court, October 21, 1929."

POINT D.

The Construction of the Statutes of California Is for the Courts of Last Resort of That State.

The definition of property rights in land is a matter of local law. This rule was definitely applied by this Court to natural deposits of oil and gas when, in *Ohio Oil Co. v. Indiana,* 177 U. S. 190, 211-212, you said:

"In view of the fact that regulations of natural deposits of oil and gas and the right of the owner to take them as an incident of title in fee to the

> surface of the earth, as said by the Supreme Court of Indiana, **is ultimately but a regulation of real property, and they must hence be treated as relating to the preservation and protection of rights of an essentially local character.** Considering this fact and the peculiar situation of the substances, as well as the character of the rights of the surface owners, we cannot say that the statute amounts to a taking of private property, when it is but a regulation by the state of Indiana of a subject which especially comes within its lawful authority."

Later, in *Walls v. Midland Carbon Co., supra,* where the action originated in the Federal courts and there was no decision in the courts of the state of Wyoming, this Court adopted and applied the same rule as a proper exercise of the police power of the state.

It is the well settled rule in this Court that both the meaning of the statutes of a state and the rules of law of the state defining property in land within the state are peculiarly questions of local law to be ascertained and established by the state courts (*Edward Hines Yellow Pine Trustees v. Martin,* 268 U. S. 458; *Lindsley v. Natural Carbonic Gas Co.,* 220 U. S. 61; *Sauer v. New York,* 206 U. S. 535; *Fox River Paper Co. v. Railroad Com. of Wis.,* 274 U. S. 651).

The rule applies to what is included under the term "land" within Mexican grants confirmed under the treaty of Guadalupe Hidalgo and patents under the Act of Congress of March 3, 1851 (*Los Angeles Farming & M. Co. v. Los Angeles,* 217 U. S. 217, 233).

The Oil and Gas Conservation Act does not impair the obligation of appellants' lease contracts. Under the law of California, as stated by the Supreme Court of that

state in *Ambassador Petroleum Co. v. Superior Court*, 208 Cal. 667, 674:

> "The leases contain the implied covenant that the lessees shall use the property lawfully. (*United States v. Gaffney, supra.*) The fact that the royalties of the lessors may be cut down by reason of regulations imposed upon the lessees would not result in any legal prejudice to their rights. If it be assumed that any temporary injunction or final judgment in the pending action may curtail production, such curtailment will be to the extent only that the operations of the petitioners constitute unlawful operations and a statutory nuisance."

What incidents attach to instruments of conveyance of interests in land is a matter of state law in respect to which the determination of the state courts is conclusive (*Mount St. Mary's Cemetery Assn. v. Mullins*, 248 U. S. 501, 504).

Decisions of a state court in matters of local law are not made Federal questions by the Fourteenth Amendment to the Constitution so as to be subject to revision in this Court (*Patterson v. Colorado*, 205 U. S. 454; *Tracy v. Ginzberg*, 205 U. S. 170; *O'Neil v. Northern Colorado Irr. Co.*, 242 U. S. 20).

Questions determined by "repeated decisions of this Court" sustaining the power of a state cannot be considered as presenting "any substantial Federal question" (*Ohio ex rel. Bryant v. Akron Metrop. Pk. Dist.*, 281 U. S. 74, 79).

POINT E.

Unreasonable Waste is a Question of Fact Properly Left to the Trial Court and is a Sufficient Standard to Guide the Judicial Judgment of That Court.

Mr. Justice Harlan in delivering the opinion of this Court sustaining the validity of a Massachusetts statute

requiring the vaccination of all the inhabitants of that state took occasion to say in *Jacobson v. Massachusetts*, 197 U. S. 11, 39:

> "'All laws,' this court has said, 'should receive a sensible construction. General terms should be so limited in their application as not to lead to injustice, oppression, or an absurd consequence. It will always, therefore, be presumed that the legislature intended exceptions to its language which would avoid results of this character. The reason of the law in such cases should prevail over its letter.' *United States v. Kirby*, 7 Wall. 482, 19 L. ed. 278; *Lau Ow Bew v. United States*, 144 U. S. 47, 58, 36 L. ed. 340, 344, 12 Sup. Ct. Rep. 517. Until otherwise informed by the highest court of Massachusetts, we are not inclined to hold that the statute establishes the absolute rule that an adult must be vaccinated if it be apparent or can be shown with reasonable certainty that he is not at the time a fit subject of vaccination."

Consonant with this rule, the District Court of Appeal of California, in sustaining the jurisdiction of appellee court (*Bandini v. Superior Court* [R. p. 357]), said:

> "We therefore turn to the second angle of our problem: Is the statute void for uncertainty and the failure of the legislature to define a standard of conduct? The objection thus urged against the enactment arises from the use of the word 'unreasonable'. Were it not for the argument that it is not waste to permit the use of the gas to lift the oil to the surface it would be obvious that without the qualifying word the enactment could not be subjected to attack on the ground of uncertainty. As we have heretofore observed, the Indiana statutes prohibited all waste, and the United States Supreme Court concluded it to be a proper exercise of the legislative authority despite the argument that the owners of the surface were entitled to make use of

its force to raise the oil from beneath the ground. Undoubtedly the legislature had in mind the Indiana statute and its construction, as well as others from other oil producing states. It would seem to logically follow that they made use of the word *unreasonable* for the very purpose of providing that the operators of a well might utilize a reasonable proportion of gas for the purpose of lifting the oil to the surface. This thought coincides with that indicated by the language we have already quoted to the effect that it shall be held to be an unreasonable waste of gas for one to produce gas in excess of 'a reasonable proportion to the amount of oil produced', when such gas is not conveniently necessary for other than lifting purposes. When viewed in this light we think the word unreasonable is not so uncertain as to render the enactment void and inoperative. In fact our courts have frequently applied the rule of reasonable use between riparian owners where similar correlative rights are involved. We have already cited the case of Eckel v. Springfield Tunnel etc. Co., and *Ex parte* Elam, and to these we may add the following: Irrigation Dist. v. Mt. Shasta P. Corp., 202 Cal. 56 (259 Pac. 444); Turner v. The James Canal Co., 155 Cal. 82 (99 Pac. 520). In the latter of these two cases the words are so pertinent that they should be quoted. They are: 'Out of regard to the equal rights of others whose lands may abut upon the same water the law has declared, as will hereafter be more fully shown, that the use of the water for irrigation, so far as it affects the rights of others similarly situated, *must be reasonable,* and must be confined to a reasonable share thereof.'

"These authorities set at rest the contention that the enactment is uncertain as well as the incidental assertion that the legislature has by the language of the act and its failure to define a standard of conduct with greater rigidity, attempted to confer upon the court a legislative function. From them, as well as those cases such as Standard Oil Co. v. U. S., 221 U. S. 1 (55 L. Ed. 619), wherein the court an-

> nounced and adopted the 'rule of reason', holding that it was only those unreasonable restraints of trade which were intended to be curbed by the Sherman Anti-trust Act, we find that the courts have for a considerable period of time been accustomed in *circumstances such as are concerned in the present enactment to apply the standard and guide of reason for the adjustment of those rights the unrestricted exercise of which would injuriously affect the rights of others.*"

The standard of "unreasonable waste" of natural gas in the California statutes, as construed by the courts of that state, is the "rule of reason" declared by this Court in *Dr. Miles Med. Co. v. John D. Park & Sons Co.,* 220 U. S. 373, 405; and *Standard Oil Co. of N. J. v. U. S.,* 221 U. S. 1, 63-64. In *Ex parte Daniels,* 183 Cal. 636, 643, where the Legislature had written the word "reasonable" into the statute as the standard, the Supreme Court of the state of California, referring to the opinion last cited, said:

> "It is scarcely to be assumed that this court would read into a statute by construction a provision which had it been included therein at the time of its enactment would have rendered the statute void and unconstitutional because of the uncertainty involved in the use of the very term read into it by the court, namely, reason."

The opinion of the District Court of Appeal from which we have quoted at such length, *supra,* sought no new untried definition of unreasonable waste, but found the definition by analogy in the established jurisprudence of the state in respect to the law of waters. The analogies in the rules applicable to these two natural resources in which landowners possess correlative rights which must

be determined by proportions of use rather than by quantity runs through all the decisions having to do with the right to the use of water by landowners overlying the common pool of percolating water, or having riparian rights on the same stream, or having the right to produce oil and gas since the decision of this Court in *Ohio Oil Co. v. Indiana, supra.*

The law on the subject of waste (common law waste) must be applied with reasonable regard to the circumstances, and, as stated in an early California case, "the question *waste or no waste* is left to the courts." (*McCord v. Oakland Q. M. Co.*, 64 Cal. 134, 141.)

Appellants were not left by the statute without clear notice of the line where they assumed the risk of unlawful waste, for, as stated by the Supreme Court of California [*People v. Associated Oil Co., supra,* Supp. p. 38]:

> "Objection is made to the provision of section 8b of the act that 'the blowing, release or escape of natural gas into the air shall be *prima facie* evidence of unreasonable waste', as inconsistent with other provisions of the act which it is claimed authorize some waste of gas in the production of oil. The state has the power generally 'to prescribe the evidence which shall be received and the effect which shall be given to it in her courts, and may exert this power by providing that proof of a particular fact, or of several taken collectively, shall be *prima facie* evidence of another fact'. (Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61.) In prescribing that any waste shall be *prima facie* evidence of unreasonable waste, the state has cast upon the party found to be wasting gas the burden of justifying the same. A statute which casts the burden of proof upon the defendant in a criminal action upon the proof of certain facts for whose existence he is responsible, has been upheld. (People v. Osaki, 79

Cal. Dec. 244.) As applied to a civil action a statute imposing the burden of proof is freed from the objections incident to the rules inherent in a criminal prosecution and cannot be avoided for any reason suggested by the petitioner or otherwise apparent.

"It is contended that the real purpose of the statute is to curtail the production of oil so as to regulate and stabilize the market price thereof. We cannot agree with this contention. Obviously the enactment is an effort on the part of the legislature to conserve for present and future needs great natural resources in which the people of the state are interested."

Appellants were, therefore, on notice as soon as they wasted any gas to the air that they must justify such action as reasonable. This brought them definitely within the line where they carried the risk (*United States v. Wurzbach*, 280 U. S. 396, 399; *United States v. Alford*, 274 U. S. 264, and authorities there cited).

For the purpose of charging an operator of an oil and gas well with notice that he is within the field wherein, he acts at his peril in releasing gas to the air, and so within the same class with those having specific intent to violate the law, it is sufficient if the statutory presumption accomplishes no more than a shifting of the burden of going forward with the evidence (*Hill v. Smith*, 260 U. S. 592, 594). The state statute may and in the present case does give a larger effect than this by declaring that positive evidence of such facts shall be *prima facie* evidence of other facts properly but not necessarily to be inferred from the proven facts (see cases quoted above in *People v. Associated Oil Co., supra*).

Appellants, therefore, knew when they released to the air approximately fifty per cent of the natural gas pro-

duced with their oil, amounting to 26,000,000 cubic feet of gas a day, or the equivalent in energy of 1300 tons of good coal, each average day, that they had passed beyond the line where they or any judicial authority could assume they were without intent to unreasonably waste gas within the language of the statute.

POINT F.

There is No Substantial Federal Question Involved in This Appeal.

As this court said in another case:

> "If the meaning affixed to the statute by the court below be accepted, every basis for such contended discrimination disappears. It follows that the argument but accentuates the frivolous character of the Federal question relied upon." (*Quong Ham Wah Co. v. Industrial Accident Com.*, 255 U. S. 445, 448. See also *Pierce Oil Corp. v. Hopkins*, 264 U. S. 137, 139.)

More recently this Court has dismissed an appeal from the Supreme Court of the state of Iowa where the same question of certainty in the statute was raised, saying in *Bevins v. State of Iowa*, No. 574, decided February 2, 1931, 75 L. Ed. (Adv. Sheets) 287:

> "Per Curiam: The appeal herein is dismissed, for the want of a substantial Federal question.
>
> "(1) Nash v. United States, 229 U. S. 373, 57 L. Ed. 1232, 33 S. Ct. 780; Omaechevarria v. Idaho, 246 U. S. 343, 62 L. Ed. 763, 38 S. Ct. 323, Hygrade Provision Co. v. Sherman, 266 U. S. 497, 501, 69 L. Ed. 402, 407, 45 S. Ct. 141.
>
> "(2) Huntington v. Worthen, 120 U. S. 97, 102, 30 L. Ed. 588, 590, 7 S. Ct. 469."

Where statutes of Kansas and Texas directed to the same purpose were sustained by the Circuit Court of Appeals a writ of certiorari was denied in this Court. (*Marrs v. City of Oxford*, 280 U. S. 573; *Oxford Oil Co. v. Atlantic Oil Prod. Co.*, 277 U. S. 585.)

The writ of prohibition was properly denied (*Mt. Vernon-Woodberry etc. Co. v. Alabama I. P. Co.*, 240 U. S. 30).

The public policy of the state of California in the regulation of a great natural resource is suspended by a supersedeas pending the decision of the appeal in this Court. [R. p. 694.] A speedy conclusion is accordingly urged.

It is respectfully submitted that the appeal should be dismissed or the judgment below affirmed.

U. S. WEBB,
Attorney General, State of California,

JAMES S. BENNETT,
Attorney for Director of Natural Resources, State of California,

Attorneys for Appellees.

Due service of the within Brief is hereby acknowledge this.....day of April, A. D. 1931.

_____

_____

Attorneys for Appellants.

FILE COPY

FILED
APR 13 193
CHARLES ELMORE CRO
CLE

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1930.

No. [redacted] 43

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation; and Ambassador Petroleum Company, a corporation,

Appellants.

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the judges thereof,

Appellees.

SUPPLEMENT TO BRIEF OF APPELLEES ON MOTION TO DISMISS APPEAL OR AFFIRM JUDGMENT.

U. S. WEBB,
Attorney-General, State of California,
JAMES S. BENNETT,
Attorney for Director of Natural Resources, State of California,
Attorneys for Appellees.

Parker, Stone & Baird Co., Law Printers, Los Angeles.

SUPPLEMENT TO BRIEF OF APPELLEES ON MOTION TO DISMISS APPEAL OR AFFIRM JUDGMENT.

CONTENTS.

SUPP. PAGE

Statement 1

Appendix A—Pertinent sections quoted from Gas Conservation Statutes of California, being Chapter 718, Statutes of 1915, p. 1419, as amended by Chapter 758, Statutes 1917, p. 1596, as amended by Chapter 535, Statutes 1929, p. 925.. 3

Appendix B—Opinion of the Supreme Court of the State of California, not officially reported, construing the Statute set forth in Appendix A, decided December 3, 1930, *People of the State of California v. Associated Oil Co., et al., defendants, Twin Bell Oil Syndicate, et al., defendants and appellants,* on application for Writ of Supersedeas, L. A. No. 12311. Writ denied..... 19

Appendix C—Opinion of the Supreme Court of the State of California, not officially reported, construing the Statute set forth in Appendix A, decided....., *People of the State of California v. Associated Oil Co., et al., defendants, Twin Bell Oil Syndicate, et al., defendants and appellants,* on appeal from preliminary injunction, L. A. No. 12311. Injunction sustained..... 45

Appendix D—Quotation from Report IV of the Federal Oil Conservation Board, Washington, June, 1930..... 51

Appendix E—Quotation from Report III of the Federal Oil Conservation Board, Washington, February 25, 1929..... 63

Appendix F—Table from article entitled "Gas, *Natural,*" New International Year Book, 1929..... 81

Appendix G—Quotation from article entitled "Gas, Natural," Americana, Volume 12, p. 302, Edition 1927..... 83

Appendix H—Copy complete, "Natural Gas in 1927," Department of Commerce, Bureau of Mines Report, included in Mineral Resources of the United States, 1927, Part II, pp. 129-137 89

IN THE

SUPREME COURT

OF THE

UNITED STATES

OCTOBER TERM, 1930.

Bandini Petroleum Company, a corporation, et al.,

Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the judges thereof,

Appellees.

SUPPLEMENT TO BRIEF OF APPELLEES ON MOTION TO DISMISS APPEAL OR AFFIRM JUDGMENT.

Eight appendices, lettered "A" to "H," are submitted herewith as a supplement to the brief of appellees on motion to dismiss appeal or affirm judgment. These appendices contain pertinent sections of the state statute to which the appeal is directed, two opinions of the Supreme

Court of California construing the statute, and quotations from encyclopedic articles, and government reports to refresh the judicial knowledge of the court.

U. S. WEBB,
Attorney General, State of California;

JAMES S. BENNETT,
Attorney for Director of Natural Resources, State of California,

Attorneys for Appellees.

Appendix A.

An act to protect the natural resources of petroleum and gas from waste and destruction; relating to the creation of a division in the department of natural resources for the prevention of such waste and destruction; providing for the appointment of a state oil and gas supervisor; prescribing his duties and powers; fixing his compensation; providing for the appointment of deputies and employees; providing for their duties and compensation; providing for the inspection of petroleum and gas wells; requiring all persons operating petroleum and gas wells to make certain reports; permitting and authorizing agreements in the interests of conservation; providing for suits by the director of the department of natural resources in the name of the people of the State of California; providing procedure for arbitration of departmental rulings; creating a fund for the purposes of the act; providing for assessment of charges to be paid by operators and providing for the collection thereof; and making an appropriation for the purposes of this act.

[Approved June 10, 1915; Ch. 718, amended 1917; Ch. 759, amended 1919; Ch. 536, amended 1921; Ch. 912, amended 1929; Ch. 535.]

The people of the State of California do enact as follows:

Section 1. The division of the department of natural resources now or hereafter created for the supervision of petroleum and gas shall be in charge of a chief to be known as "state oil and gas supervisor." [Stats. 1929, p. 925.]

Sec. 3. It shall be the duty of the state oil and gas supervisor so to supervise the drilling, operation and maintenance and abandonment of petroleum or gas wells in the State of California, as to prevent, as far as possible, damage to underground petroleum and gas deposits from infiltrating water and other causes and loss of petroleum and natural gas. It shall be the duty of any person, firm or corporation engaged in operating any petroleum or gas well in this state wherein high pressure gas is known to exist, and any person firm or corporation drilling for petroleum or gas in any district in this state where the pressure of petroleum or gas is unknown, to equip any such well with casing of sufficient strength, and such other safety devices as may be necessary, in accordance with methods approved by the state oil and gas supervisor, and to use every effort and endeavor to effectually prevent blow-outs, explosions and fires. [Stats. 1929, p. 925.]

Sec. 8*b*. The unreasonable waste of natural gas by the act, omission, sufferance or insistence of the lessor, lessee or operator of any land containing oil or gas, or both, whether before or after the removal of gasoline from such natural gas, is hereby declared to be opposed to the public interest and is hereby prohibited and declared to be unlawful. The blowing, release or escape of natural gas into the air shall be prima facie evidence of unreasonable waste. [Stats. 1929, p. 927.]

Sec. 8*c*. Whenever the state oil and gas supervisor shall find that it is in the interest of the protection of oil or gas from unreasonable waste, it is declared to be lawful for the lessor, lessee, operator or other persons, firms and corporations owning or controlling royalty or

other interests in the separate properties of the same producing or prospective oil or gas field, to enter, with the approval of the state oil and gas supervisor, into agreements for the purpose of bringing about the cooperative development and operation of all or a part or parts of such field, or for the purpose of bringing about the development or operation of all or a part or parts of such field as a unit, or for the purpose of fixing the time, location and manner of drilling and operating of wells for the production of oil or gas, or providing for the return of natural gas into the sub-surface of the earth for the purpose of storage or the repressuring of an oil or gas field. Any such agreement shall bind the successors and assigns of the parties thereto in the land affected thereby and shall be enforceable in an action for specific performance. [Stats. 1929, p. 927.]

Sec. 8*d*. Upon complaint being made to the director of natural resources by any person operating in any oil field that there is occurring or threatened an unreasonable waste of gas in any field or fields and a petition is filed with said director requesting that a hearing be held to consider whether such waste is occurring or threatened, and it appearing to the director of natural resources that there is probable cause for such complaint, he shall order the state oil and gas supervisor to hold such a hearing and to fix a time and place therefor; such a hearing may also be ordered by the said director on the application of the state oil and gas supervisor. Notice of the time and place of said hearing shall be given by publication in a newspaper printed and published in the county in which the unreasonable waste of gas is alleged to be taking place or

to be threatened. Said notice shall also specify the commonly accepted name or a general description of the field or locality in which the unreasonable waste of gas is alleged to be taking place or to be threatened. The place of hearing shall be in the county or in any of the counties in which the unreasonable waste of gas is alleged to be taking place or to be threatened. Such publication shall be daily for five (5) days prior to the time of the hearing. The state oil and gas supervisor shall also send notice by mail to each lessor, lessee or operator of any oil and gas well in said field so far as the same may be known to him. No failure to send such written notice shall affect the validity of the proceeding. At such hearing all persons interested shall be entitled to be heard and may present testimony either oral or written. All witnesses shall be sworn and a transcript of the proceedings shall be kept by a stenographic reporter. All the provisions of this act in reference to the subpoenaing of witnesses and the taking of depositions shall be applicable to the hearing before the state oil and gas supervisor. Upon the conclusion of said hearing the state oil and gas supervisor shall determine whether or not there is an unreasonable waste of gas in said field, in existence or threatened, and shall also determine the extent to which the waste of gas therein occurring or threatened is unreasonable. If it shall appear that gas is being produced from any oil well or wells in quantities exceeding a reasonable proportion to the amount of oil produced from the same well or wells, even though it is shown that such excess gas is being used in the generation of light, heat, power or other industrial purpose and that there is sufficient other gas available for such uses from other wells in the same or other fields in which

the gas produced is not in excess of the amount which bears a reasonable proportion to the amount of oil produced from such other wells and that there are adequate gas-pipe-line connections between such other wells and the place of utilization of such gas the state oil and gas supervisor shall hold that such excess production of gas is unreasonable waste thereof if such holding will not cause an unreasonable waste of gas in any other field. If the waste of gas be found unreasonable an order shall be made directing that such unreasonable waste of gas shall be discontinued or refrained from to the extent stated in said order. The sale or delivery of gas to another by a lessor, lessee or operator shall be no defense, excuse or reason for any lessor, lessee or operator disobeying an order of the state oil and gas supervisor directing the discontinuance or curtailment of the production of the well or wells from which said gas is being produced where such gas is being unreasonably wasted by such buyer or by the person to whom deliveries are being made. A copy of said order must be posted in a conspicuous place upon the property affected thereby, and said order shall become final five (5) days after such posting unless appealed from as provided in section 9 hereof. [Stats. 1929, p. 928.]

Sec. 9. The lessor, lessee, or any operator or any well owner or the owner of any rig, derrick, or other operating structure, or his or its local agent, must within five (5) days from the date of the service of any order from the supervisor or his chief deputy or field deputy, other than the order contemplated by section 8*d* hereof, file with the supervisor or his deputy in the district where the property is located, a written statement that the order

is not acceptable, and that appeal from said order is taken to the board of commissioners of said district under the provisions of this act, or comply with such order. Any lessor, lessee, or operator affected by an order made pursuant to section 8*d* hereof may, within five (5) days from the posting of the copy of such order file with the supervisor written appeal therefrom to the board of commissioners of said district under the provisions of this act. Any such appeal shall operate as a stay of any order issued under or pursuant to the provisions of this act. Immediately upon filing of such notice of appeal, the deputy supervisor of the district, as secretary ex officio of the board of oil and gas commissioners, shall call a meeting of said commissioners to hear and pass upon said appeal. No commissioner shall be disqualified from sitting or acting in any appeal from any order of the state oil and gas supervisor involving the unreasonable waste of gas by reason of the fact that he is an employee of a lessor, lessee or operator who is interested in the oil or gas field affected by such order appealed from. The hearing upon said appeal before said district board of oil and gas commissioners shall be de novo and at such place in the district as the commissioners may designate, and within ten days from the taking of such appeal five days' notice in writing shall be given to the appellant of the time and place of such hearing, and for good cause the commissioners may postpone such hearing on the application of appellant, or the state oil and gas supervisor, or the field deputy in said district, for not exceeding five days. The board of commissioners after hearing shall affirm, set aside or modify said order as shall be determined by a majority of the whole board. The decision of said

board shall forthwith be filed with the oil and gas supervisor and upon such filing shall be final. [Stats. 1929, p. 929,]

Sec. 14*a*. When the decision of the state oil and gas supervisor that there is an unreasonable waste of gas occurring or threatened, shall have become final, a certified copy thereof, or if modified by the order of the board of commissioners, then a certified copy of the order as modified, shall be filed with the director of the department of natural resources. The director, unless said order is complied with voluntarily, shall have proceedings instituted in the name of the people of the State of California to enjoin unreasonable waste of gas. Such proceedings shall be instituted in the superior court for the county in which the property where the wastage is occurring or is threatened or any part thereof may lie. There may be joined in the same proceedings any number of defendants, although their properties and interests may be severally owned and their actual or threatened unreasonable wastage of gas may be separate and distinct; *provided,* the actual or threatened unreasonable waste by all of the defendants are in or with reference to the same producing or prospective oil or gas field. In such suits no restraining order shall be issued ex parte but otherwise the procedure shall be conformable with the provisions of chapter three of title seven of part two of the Code of Civil Procedure of the State of California, and no temporary or permanent injunction issued in such proceedings shall be refused or dissolved or stayed pending appeal upon the giving of any bond or undertaking or otherwise. In such proceedings the findings of the oil and gas supervisor,

unless set aside or modified by the board of commissioners, or if so modified then except to the extent so modified, shall constitute prima facie evidence of the unreasonable wastage of gas therein found to be occurring or threatened. The judgment of the court shall be appealable by any party in the same manner as other judgments rendered under said chapter. [Stats. 1929, p. 930.]

Sec. 14*b*. Whenever it appears to the director of the department of natural resources that the owners, lessors, lessees or operators of any well or wells producing oil and gas or oil or gas are causing or permitting an unreasonable waste of gas, he may institute, or have proceedings instituted, in the name of the people of the State of California, to enjoin such unreasonable waste of gas regardless of whether proceedings have or have not been instituted under section 8 hereof, and regardless of whether an order has or has not been made therein. Such proceedings shall be instituted in the superior court for the county in which the well or wells from which the unreasonable waste of gas is occurring or any thereof are situated. The owners, lessors, lessees or operators causing or permitting an unreasonable waste of gas in the same oil or gas field, although their properties and interests may be separately owned and their unreasonable waste separate and distinct, may be made parties to said action. In such suits no restraining order shall be issued ex parte, but otherwise the procedure shall be governed by the provisions of chapter three, title seven, part two of the Code of Civil Procedure of the State of California and no temporary or permanent injunction issued in such proceedings shall be refused or dissolved or stayed pending

appeal upon the giving of any bond or undertaking, or otherwise. [Stats. 1929, p. 930.]

Sec. 17. The owner or operator of any well referred to in this act shall, before commencing the work of drilling an oil or gas well, file with the supervisor, or his local deputy, a written notice of intention to commence drilling. Such notice shall also contain the following information: (1) Statement of location and elevation above sea level of the floor of the proposed derrick and drill rig; (2) the number or other designation by which such well shall be known, which number or designation shall not be changed after filing the notice provided for in this section, without the written consent of the supervisor being obtained therefor; (3) the owner's or operator's estimate of the depth of the point at which water will be shut off, together with the method by which such shut-off is intended to be made and the size and weight of casing to be used; (4) the owner's or operator's estimate of the depth at which oil or gas producing sand or formation will be encountered.

After the completion of any well the provisions of this section shall also apply, as far as may be, to the deepening or redrilling of any well, or any operation involving the plugging of any well or any operations permanently altering in any manner the casing of any well; *and provided, further,* that the number or designation by which any well heretofore drilled has been known, shall not be changed without first obtaining a written consent of the supervisor. [Stats. 1917, p. 1596.]

Sec. 17*a*. It shall be the duty of the owner or operator of any well referred to in this act to notify the super-

visor, or his deputy, in writing, in such form as the supervisor, or his deputy, may direct, of the sale, assignment, transfer, conveyance or exchange, by such owner or operator, of such well, and the land, owned or leased, upon which the well is located, within five days after such sale, assignment, transfer, conveyance or exchange. Said notice shall contain the following: (1) the name and address of the person, firm, association, corporation, trust or syndicate to whom such well was sold, assigned, transferred, conveyed or exchanged; (2) the name and location of such well; (3) the date of the sale, assignment, transfer, conveyance or exchange; (4) the date when possession was relinquished by the owner or operator; (5) a description of the land upon which such well is situated.

Every person, firm, association, corporation, trust or syndicate acquiring the ownership of any well referred to in this act, whether by purchase, transfer, assignment, conveyance or exchange, or otherwise, shall within five days after acquiring such well, and the land, owned or leased, upon which the well is located, notify the supervisor, or his deputy, in writing, of such ownership. Said notice shall contain the following: (1) the name and address of the person, firm, association, corporation, trust or syndicate from whom said well was acquired; (2) the name and location of said well; (3) the date of acquisition; (4) the date when possession was acquired; (5) a description of the land upon which such well is situated. [Stats. 1929, p. 932.]

Sec. 18. It shall be the duty of the owner and operator of any well referred to in this act to keep a careful and accurate log, core record and history, of the drilling

of such well, such log to show the character and depth of the formation passed through or encountered in the drilling of such well, and particularly to show the location and depth of the water-bearing strata, together with the character of the water encountered from time to time (so far as ascertained) and to show at what point such water was shut off, if at all, and if not, to so state in such log, and show completely the amounts, kinds and size of casing used, and show the depth at which oil-bearing strata are encountered the depth and character of same and whether all water, overlying and underlying such oil-bearing strata was successfully and permanently shut off so as to prevent the percolation or penetration into such oil-bearing strata; such core record to show depth, character, and fluid content of cores obtained, so far as determined; such history to show location and amount of sidetrack casings, tools or other material, depth and quantity of cement in cement plugs, shots of dynamite or other explosives, results of production, and other tests during drilling operations; such logs shall be kept in the local office of the owner or operator, and, together with the tour reports of said owner or operator, shall be subject, during business hours, to the inspection of the supervisor, or any of his deputies, or any of the commissioners of the district, except in the case of a prospect well as hereafter defined. Upon the completion of any well, or upon the suspension of operations upon any well, for a period of six months, if it be a prospect well, or for thirty days, if it be in proven territory, a copy of said log, core record and history, in duplicate, and in such form as the supervisor may direct, shall be filed within ten days after such completion, or after the expiration of said thirty

day period, with the field supervisor, and a like copy shall be filed upon the completion of any additional work in the deepening of any such well. The owner or operator of any well referred to in this act, or his local agent, shall file with the supervisor a copy of such log, history, and core record, or any portion thereof, at any time after the commencement of the work of drilling any such well, except a prospect well, upon written request of the supervisor, or his deputy. Such request shall be signed by the supervisor, or his deputy, and served either personally upon, or by mailing a copy of said request, by registered mail, to the last known post-office address of such owner or operator or agent.

A well shall be deemed completed, for the purposes of this act, thirty days after the well has commenced to produce oil, water, or gas, unless drilling operations are resumed before the end of the thirty-day period.

The state oil and gas supervisor shall determine and designate what wells are prospect wells within the meaning of this act, and no reports shall be required from such prospect wells until six months after the completion thereof.

The owner or operator of any well drilled previous to the enactment of this act shall furnish to the supervisor or his deputy, a complete and correct log, in duplicate, and in such form as the supervisor may direct, or his deputy, of such well, so far as may be possible, together with a statement of the present condition of said well. [Stats. 1929, p. 933.]

Sec. 20. It shall be the duty of every person, association or corporation producing oil in the State of Cali-

fornia, to file with the supervisor, on or before the tenth day of each month, for the last preceding calendar month, a statement showing amount of oil and gas produced during the period indicated from each well, together with its gravity and the amount of water produced from each well, estimated in accordance with methods approved by the supervisor, and the number of days during which fluid was produced from each well, the number of wells drilling, producing or idle, owned or operated by said person, association or corporation; also what disposition was made of the gas produced from each well, including the names of persons, if any, to whom said gas was delivered, and such other information regarding gas and the disposition thereof as the state oil and gas supervisor may require; *provided,* that, upon request and satisfactory showing a longer interval may be fixed by the state oil and gas supervisor as to such reports in the case of any specific owner or operator.

This information shall be in such form as the supervisor may designate. [Stats. 1929, p. 935.]

Sec. 21. Any owner or operator of any well referred to in this act, or employee thereof, who refuses to permit the supervisor, or his deputy, or his inspector, to inspect the same, or who wilfully hinders or delays the enforcement of this act, and every person, firm, association, corporation, trust or syndicate, whether as principal, agent, servant, employee or otherwise, violating or failing, neglecting or refusing to comply with any of the provisions of this act, or failing or neglecting or refusing to furnish any report or record which may be required pursuant to the provisions of this act, or who wilfully renders

a false or fraudulent report, is guilty of a misdemeanor, and shall be punishable by a fine of not less than one hundred dollars, nor more than five hundred dollars, or by imprisonment in the county jail for not exceeding six months, or by both such fine and imprisonment, for each such offense. [Stats. 1929, p. 935.]

Sec. 21*a*. The charges hereinafter provided for are directed to be levied by the State of California as necessary in the exercise of its police power and to provide a means by which to supervise and protect deposits of petroleum and gas within the State of California, in which deposits the people of the State of California are hereby declared to have a primary and supreme interest. [Stats. 1917, p. 1598.]

Sec. 22. Charges levied, assessed and collected as hereinafter provided upon the properties of every person, firm, corporation or association operating any well or wells for the production of petroleum in this state, or operating any well or wells for the production of natural gas in this state which gas wells are situate on lands situate within two miles, as near as may be, of any petroleum or gas well the production of which is chargeable under this act, shall be used exclusively for the support and maintenance of the division of the department of natural resources charged with the supervision of petroleum and gas, and shall be assessed and levied by the department of natural resources and collected in the manner hereinafter provided. [Stats. 1929, p. 935.]

Sec. 23. Every person, firm, corporation or association operating any petroleum well or wells in this state shall annually pay a charge to the state treasurer at a uniform rate per barrel of petroleum produced for the preceding calendar year at the time and in the manner hereinafter provided, based upon a verified report as herein provided. [Stats. 1915, p. 1410.]

Sec. 24. Every person, firm, corporation or association operating any gas well or wells in this state shall annually pay a charge to the state treasurer based upon the amount of gas sold in the preceding calendar year, at a fixed rate per thousand cubic feet, at the times and in the manner hereinafter provided, based upon a verified report as herein provided. [Stats. 1917, p. 1599.]

Sec. 50. Whenever the term "supervisor" is used in this act it shall be taken to mean the "state oil and gas supervisor," the term "oil" shall include "petroleum," the term "petroleum" shall include "oil," the term "gas" shall mean natural gas coming from the earth, the term "operator" shall mean any person, firm or corporation drilling, maintaining, operating, pumping, or in control of a well in any territory which the supervisor determines to be oil or gas producing territory, the term "owner" shall include "operator" when any oil or gas well is operated or has been operated or is about to be operated by any person, firm or corporation other than the owner thereof, and the term "operator" shall include "owner" when any such well is or has been or is about to be operated by or under the direction of the owner, except that all the provisions of this act relating to assessments for the purposes of this act based upon the annual production of oil or petroleum or sale of gas, as set forth in sections 22 to 45 inclusive of this act, shall apply only to a person, firm or corporation operating an oil or petroleum or gas well, and shall not apply to the owner of such well if some person, firm or corporation, other than such owner, has been actually operating the well during the whole period for which such annual charge is made, but in the event that the actual operation of any such well changes hands during such period, the charge shall be apportioned upon the basis of the oil or petroleum or gas produced, and the lien provided for in section 41 of this act shall be a lien against the property of each and all such operators.

Words used in this act in the present tense include the future as well as the present; words used in the masculine gender include the feminine and neuter; and the neuter, the masculine and feminine; the singular number includes the plural, and the plural, the singular; "writing" includes "printing" and "typewriting." [Stats. 1929, p. 942.]

Sec. 52. If any section, subsection, sentence, clause or phrase of this act is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this act. The legislature hereby declares that it would have passed this act, and each section, subsection, sentence, clause, and phrase thereof, irrespective of the fact that any one or more other sections, subsections, sentences, clauses, or phrases be declared unconstitutional. [Stats. 1915, p. 1419.]

Sec. 53. This act shall be liberally construed to meet its purposes and the director of the department of natural resources and the supervisor shall have all powers which may be necessary to carry out the purposes of this act, and the provisions of this act shall apply to any land or wells situated within the boundaries of an incorporated city where the drilling of oil wells is now or may hereafter be prohibited until all wells thereon have been abandoned as provided in this act. [Stats. 1929, p. 943.]

This act is hereby declared to be an urgency measure necessary for the immediate preservation of the public peace and safety within the meaning of section 1 of article four of the constitution, and as such shall take effect immediately. The facts constituting such necessity are as follows:

At the present time in the oil and gas producing fields within the state there is now being blown into the air and wasted daily on the average approximately five hundred million cubic feet of gas. New fields producing heavily of natural gas are being opened up which will tend to add to the amount of natural gas being blown into the air and wasted and lost. [Stats. 1929, p. 943.]

Appendix B.

L. A. No. 12311. In bank. December 3, 1930.

People of the State of California on relation of Fred G. Stevenot, Director of Natural Resources of the State of California, plaintiffs and respondents, v. Associated Oil Company et al., defendants; Twin Bell Oil Syndicate, Second Twin Bell Syndicate and Star Petroleum Company, defendants and appellants.

Application for writ of supersedeas to stay effect of preliminary injunction pending appeal in an action to restrain unreasonable waste of natural gas from oil wells. Writ *denied*.

For Petitioners Twin Bell Oil Syndicate—Neil S. McCarthy, Earl L. Banta, Harmel L. Pratt, Howard P. Hall.

Amici Curiae for Petitioners—Call & Murphey, Robert B. Murphey, Asa V. Call; William L. Murphey, of counsel.

For Petitioners Robert M. Pease and Roy P. Dolley—Charles A. Son.

For Respondents—James S. Bennett; U. S. Webb, Attorney-General.

Amicus Curiae in re constitutionality of California Act relating to Conservation of Petroleum, etc.—Roland Rich Woolley.

Amicus Curiae for Appellants—Arthur R. Smiley.

Amici Curiae in support of Petitioners—Rush M. Blodgett, George W. Nilsson; Charles H. King, of counsel.

This is a petition for a writ of supersedeas to stay the effect of a preliminary injunction pending an appeal therefrom by the petitioners herein.

The action was commenced in the county of Los Angeles on September 11, 1929, and in the name of the People on the relation of Fred G. Stevenot, Director of Natural Resources of the State of California against some forty-three defendants who are oil producers owning oil wells and leases in the Santa Fe oil field in said county. The purpose of the action is to restrain the alleged unreasonable waste of natural gas from the wells of the defendants. In response to the order to show cause the defendants appeared and after an extended hearing the superior court granted a temporary injunction, the terms of which were complied with except by the defendants Twin Bell Syndicate, Second Twin Bell Syndicate and Star Petroleum Company, who have taken an appeal from the order granting the temporary injunction and who are the petitioners herein.

On the hearing it appeared from the allegations of the complaint and the affidavits and other evidence, both oral and documentary, in support thereof, that during the year 1928, 77,000,000,000 cubic feet of natural gas were wasted into the air from the subsurface oil and gas zones in the state of California through the operation of oil wells; that because of the increase in the production of oil since that time a proportional increase in the wastage of natural gas is taking place, and that in the Santa Fe Springs oil field alone there was at the time of the commencement of the action a wastage of natural gas to the extent of approximately 500,000,000 cubic feet of gas per

day. This wastage was alleged to be unreasonable and unlawful under the terms of the so-called Oil and Gas Conservation Act. (Stats. 1915, p. 1404, as amended by Stats. 1929, p. 923.) In granting the preliminary injunction the court found that no sufficient cause had been shown why a preliminary injunction should not be issued as prayed for in the complaint; that the equities of all parties might be fairly conserved by a preliminary injunction which would limit the waste of gas by restricting the production thereof to a quantity reasonably in excess of the present outlets for the beneficial use above ground; that the total gas escapage from outlets for all uses, with a reasonable tolerance to take care of fluctuating demands and the necessary waste, would be fixed at 285,000,000 cubic feet of gas per day in said field, and the estimated potential production of oil taken at 237,-576 barrels per day distributed among lessees and other operating property units as shown by a schedule set out in the order. It was then provided in the order that the defendants be enjoined until the further order of the court: "1. From blowing, releasing, or permitting any natural gas to escape into the air from any well or wells in the Santa Fe Springs oil field before the removal of the gasoline from such natural gas. 2. From operating any well producing natural gas in the Santa Fe Springs oil field except while exercising a high degree of care in the selection and adjustment of appliances and in the use thereof for the purpose of keeping each producing well in its 'optimum gas-oil ratio'—the term 'optimum gas-oil ratio' being defined as the smallest number of cubic feet of gas which can be produced with each barrel of oil from the same well at the same time. 3. From producing

more net formation gas on the average day of each seven (7) day period from any lease or other property unit than is set forth in the 'Allowed Gas Production' column following:" The name of each operator and of each well operated is then set out in detail and opposite thereto the estimated potential in barrels of oil per day and the allowed gas production in daily average as to each well is stated. The term "Gas-oil ratio," as used in the order, is declared to be "the proportion which the total number of cubic feet of formation gas bears to the total number of barrels of net oil produced from the same well at the same time, exclusive of the quantity of gas inserted in the well for the purpose of lifting the oil." The preliminary injunction contains other provisions not necessary to be noticed, except that the court retained jurisdiction to vacate or modify the same on five days' notice. The order was dated March 19, 1930, and to be effective two days later. On March 28, 1930, the court modified its order as to allowable gas production applicable to certain wells and certain defendants operating the same, including the petitioners herein, and in such a way that instead of a gas allowance of 1200 cubic feet to a potential barrel of oil established by the original order, the petitioners were allowed approximately 2000 cubic feet of gas to a potential barrel of oil. The oil cut in the field was fifty per cent of the potential, consequently the petitioners were allowed a potential ratio of 4000 cubic feet of gas to a barrel of oil. From the order granting the temporary injunction the petitioners herein have taken an appeal.

The authority for the action in which the temporary injunction was issued is found in section 14b of the Oil

and Gas Conservation Act (Stats. 1915, p. 1404, as amended, Stats. 1929, p. 923.) The purpose of the act is stated in its amended title, whcih recites in part: "An act to protect the natural resources of petroleum and gas from waste and destruction." Section 8b of the amended act reads: "The unreasonable waste of natural gas by the act, omission, sufferance or insistence of the lessor, lessee or operator of any land containing oil or gas, or both, whether before or after the removal of gasoline from such natural gas, is hereby declared to be opposed to the public interest and is hereby prohibited and declared to be unlawful. The blowing, release or escape of natural gas into the air shall be prima facie evidence of unreasonable waste." Section 14b of the act provides in part: "Whenever it appears to the director of the department of natural resources that the owners, lessors, lessees or operators of any well or wells producing oil and gas or oil or gas are causing or permitting an unreasonable waste of gas, he may institute, or have proceedings instituted, in the name of the people of the state of California, to enjoin such unreasonable waste of gas. . . . Such proceedings shall be instituted in the Superior Court for the county in which the well or wells from which the unreasonable waste of gas is occurring or any thereof are situated. The owners, lessors, lessees or operators causing or permitting an unreasonable waste of gas in the same oil or gas field, although their properties and interests may be separately owned and their unreasonable waste separate and distinct, may be made parties to said action. In such suits no restraining order shall be issued ex parte, but otherwise the procedure shall be governed by the provisions of chapter three, title seven,

part two of the Code of Civil Procedure of the state of California and no temporary or permanent injunction issued in such proceedings shall be refused or dissolved or stayed pending appeal upon the giving of any bond or undertaking, or otherwise."

It is conceded that this court has the power, by virtue of section 4 of article VI of the Constitution and in aid of its appellate jurisdiction, to stay pending appeal the operation of a prohibitory injunction, and it is not seriously contended that the provision at the end of said section 14b that "no temporary or permanent injunction issued in such proceedings shall be refused or dissolved or stayed pending appeal upon the giving of any bond or undertaking, or otherwise," would have the effect of limiting the discretion of this court in the exercise of its constitutional power. Although the legislature may prescribe certain regulations in matters of appeal and restrict the granting of a stay of execution, it may not enact legislation which will deprive the reviewing court of its power under the Constitution to grant a writ of supersedeas in a proper case. (*United States of America v. Berg*, 202 Cal. 10, 13; *Ohaver v. French*, 206 Cal. 118.) Whether the application herein presents a proper case for the issuance of the writ is one of the principal points to be considered.

Three main contentions are advanced for the issuance of the writ: First, that the Conservation Act is unconstitutional because the enforcement of its provisions amounts to a taking of property without due process of law and if the taking be for a public purpose, that such taking is the taking of private property without compen-

sation; secondly, that the provision of the act declaring unlawful the "unreasonable waste" of natural gas is so vague, uncertain and indefinite as to be devoid of any guide or standard as to what shall constitute reasonable or unreasonable waste of natural gas; and thirdly that the order is arbitrary and violative of the due process and equal rights guaranties of the state and federal Constitutions and that the showing made on this application presents a proper case for the issuance of the writ in order to preserve the appellants' rights pending appeal.

The foregoing contentions will be considered in the order stated. The first relates to the constitutionality of the act as an alleged police measure. This question is argued extensively by counsel for the parties and more at length by numerous amici curiae supporting the position of the petitioners, who contend that the pertinent portions of the act do not constitute a valid exercise of the police power of the state. It is argued that the state has no sufficient interest in oil and gas resources within the boundaries to justify its attempt to control what the owner of the land may do with his own beyond such relations as will prevent injury or are necessary to protect the life, health and safety of its citizens. But there is no longer any doubt that this general rule has been extended so as to include measures which relate to the general welfare. In the case of *C. B. & Z. Railway v. Drainage Commissioners,* 200 U. S. 561, the Supreme Court stated at page 592: "We hold that the police power of a state embraces regulations designed to promote the public convenience or the general prosperity, as well as regulations designed to promote the public health, the public morals or the public safety." (Citing cases.) (See, also, *Bacon v.*

Walker, 204 U. S. 311; *Camfield v. U. S.,* 167 U. S. 519; *Noble State Bank v. Haskell,* 219 U. S. 104; *Barbier v. Connally,* 113 U. S. 27; *Village of Euclid v. Ambler Realty Co.,* 272 U. S. 365; *Zahn v. Board of Public Works,* 274 U. S. 325, 71 Law Ed. 1074; *Block v. Hirsh,* 256 U. S. 135.) The same view has heretofore been expressed by this court in *Miller v. Board of Public Works,* 195 Cal. 477. The difficulty usually arises in determining whether the particular right sought to be regulated or prohibited is subject to such regulation or prohibition and whether in the particular case the legislature has gone too far with the resultant unlawful taking. It may not be disputed that the use of private property is a right as much entitled to protection as the property itself, and an undue restriction on the use thereof is as much a taking "for constitutional purposes as appropriating or destroying it." (*Penna. Coal Co. v. Mahon,* 260 U. S. 393; *Missouri Pac. Ry. v. Nebraska,* 164 U. S. 403; *Pumpelly v. Green Bay Canal Co.,* 80 U. S. 166.) If the question between the taking of private property and a proper exercise of the police power is fairly debatable, the statute will be upheld. (*Gorieb v. Fox,* 274 U. S. 603, 71 L. Ed. 1128; *Zahn v. Board of Public Works, supra; Levy Leasing Co. Inc. v. Siegel,* 258 U. S. 242.) Also where a strong and preponderant opinion prevails in the state that a particular measure is greatly and immediately necessary to the public welfare, that factor has an important influence in establishing the limitations of the police power in a particular case (*Muller v. Oregon,* 208 U. S. 412; *Noble State Bank v. Haskell, supra*); although such a view is always subject to the qualification stated by Mr. Justice Holmes in *Penna. Coal Co. v. Mahon, supra:* "The general rule at

least is that while property may be regulated to a certain extent, if regulation *goes too far,* it will be recognized as a taking."

There are many cases and great uniformity of decision to the effect that the public has a sufficient interest in the preservation of oil and gas to justify legislation to prevent waste thereof, among which are *Ohio Oil Co. v. Indiana,* 177 U. S. 190; *Walls v. Midland Carbon Co.,* 254 U. S. 300; *Lindsley v. Natural Carbonic Gas Co.,* 220 U. S. 61; *Hague v. Wheeler,* 157 Pa. St. 324, 37 A. S. R. 736; *Quinton Relief Oil & Gas Co. v. Corporation Commissioner,* 101 Okla. 164, 224 Pac. 156; *State v. Ohio Oil Co.,* 150 Ind. 21, 49 N. E. 809; *Commonwealth v. Trent,* 117 Ky. 34, 77 S. W. 390; *Louisiana Gas & Fuel Co. v. White Brothers,* 157 La. 728, 103 So. 23. (See, also, note in 24 A. L. R., beginning at page 307.)

The argument is advanced by the petitioners and by their supporting amici curiae that the public interest cannot be invoked where the common law as to the nature of the property right in the oil and gas prevails. The rule at common law is that the owner of the land owns everything above and beneath the surface and it is contended that oil and gas beneath the surface are recognized as part of the realty and belong to the owner of the land and are a part of it so long as they are on it or in it or subject to his control. In this they are supported by the case of *Gas Products Co. v. Rankin,* 63 Mont. 372, 207 Pac. 993, where the same rule was applied to gas and oil beneath the surface as to minerals in place, such as coal and ore. But Montana appears to be the one state, among the many gas and oil producing states, which has established such a rule

of property with reference to gas and oil. By uniformity of decision elsewhere the common law rule has been modified in order to adapt it to the peculiar nature of gas and oil. The rule universally adopted, except in Montana, is expressed in *Brown v. Spillman*, 155 U. S. 665, as follows: "Petroleum gas and oil are substances of a peculiar character, and decisions in ordinary cases of mining, for coal and other minerals which have a fixed situs, cannot be applied to contract concerning them without some qualifications. They belong to the owner of the land, and are a part of it, so long as they are on it or in it, or subject to his control, but when they escape and go into other land, or come under another's control, the title of the former owner is gone. If an adjoining owner drills his own land and taps a deposit of oil or gas, extending under his neighbor's field, so that it comes into his well, it becomes his property." (Citing cases.) In this state the character of oil beneath the surface as distinguished from that of the precious metals, fixed in the veins which hold them, was well described in *Acme Oil and Mining Co. v. Williams,* 140 Cal. 681, wherein it was said at page 684: "Oil, on the contrary, is of a fluctuating, uncertain, fugitive nature, lies at unknown depths, and the quantity, extent, and trend of its flow are uncertain. It requires but a small surface area, in what is known as an oil district, upon which to commence operations for its discovery. But when a well is developed the oil may be tributary to it for a long distance through the strata which holds it. This flow is not inexhaustible, no certain control over it can be exercised, and its actual possession can only be obtained, as against others in the same field, engaged in the same enterprise, by diligent and continuous pumping.

It is the property of anybody who can acquire the surface right to bore for it, and when the flow is penetrated, he who operates his well most diligently obtains the greatest benefit, and this advantage is increased in proportion as his neighbor similarly situated neglects his opportunity." The same rule would apply to natural gas. It is common knowledge that the surface right to prospect for and recover oil and gas, apart from the land in which they are situated, is the subject of barter, lease or sale. When so acquired the right is subject to assessment apart from the land. (*Graciosa Oil Co. v. Santa Barbara,* 155 Cal. 140.) The generally accepted view, therefore, is that the property right of the owner or lessee of land in and to the gas and oil beneath the surface is not an absolute one. Such substances, because of their peculiarity in the natural state, partake more of the nature of common property, title to which becomes absolute when they are captured and reduced to possession. Because of their peculiar nature the public has a definite interest in their preservation from waste and destruction. This is true because of their character as natural resources and also because the public interest has attached by virtue of positive statutory law or by court judgment independent of statute. In seven states of the Union legislation making unlawful the unreasonable waste of natural gas has been upheld: Indiana: *Indiana v. Ohio Oil & Gas Co.,* 150 Ind. 21, 47 L. R. A. 627; *Ohio Oil Co. v. Indiana,* 177 U. S. 190, 44 L. Ed. 729. Kentucky: *Commonwealth v. Trent,* 117 Ky. 34, 4 Ann. Cas. 209. Wyoming: *Walls v. Midland Carbon Co.,* 254 U. S. 300, 65 L. Ed. 276. Oklahoma: *Quinton Relief O. & G. Co. v. Corp. Com.,* 101 Okla. 164, 224 Pac. 156. Louisiana: *State v. Carson Carbon Co.,* 162 La. 781, 111

So. 162. Texas: *Oxford Oil Co. v. Atlantic Oil P. Co.*, 22 Fed. (2d) 597; certiorari denied United States Supreme Court, 72 L. Ed. 1000; *R. R. Com. of Texas v. Bass*, 10 S. W. (2d) 586; *Magnolia Petroleum Co. v. Stroud*, 3 S. W. (2d) 462. Kansas: *State v. Lebow*, 280 Pac. 773, 775; *Marrs v. City of Oxford*, 32 Fed. (2d) 134. Rehearing denied, Circuit Court of Appeals, May 17, 1929. Certiorari denied, United States Supreme Court, October 21, 1929. Independently of statute the waste of gas resulting merely in a depletion of the supply in a common reservoir has been enjoined. (*Manufacturers Gas & Oil Co. v. Ind. Natural Gas Co.*, 155 Ind. 461, 57 N. E. 912, and 156 Ind. 679, 59 N. E. 169; *Louisville Gas Co. v. Ky. Heating Co.*, 117 Ky. 71, 77 S. W. 368, and 132 Ky. 435, 111 S. W. 374; *Louisiana Gas & Fuel Co. v. White Brothers*, 157 La. 728, 103 So. 23.) The leading case on the power of the state to prevent the waste of natural gas is *Ohio Oil Company v. Indiana*, 177 U. S. 190. There a statute of Indiana was sustained which made it unlawful to permit the escape of natural gas from any well for more than two days after oil or gas had been struck, without storing the same. There is considerable discussion in that case concerning the protection necessary to be accorded the correlative rights of adjoining land owners in the same field, and the petitioners herein seek to confine the holding of the Supreme Court in that case to the protection, under the exercise of the police power, of those correlative rights. But the holding in that case cannot be so limited. The decision in that case defines the so-called correlative right not necessarily as a right to a fixed distributive or proportional share of the oil and gas underlying the surface, which no other owner of soil over-

lying the same reservoir may take and use beneficially, but as a coequal right to take whatever of the oil and gas can be captured, so long as waste, as defined by the statute, is not committed.

In the Ohio Oil Company case the Supreme Court, at page 204, quoted with approval from *Hague v. Wheeler*, 157 Penn. St. 324, as follows: "'Now it is doubtless true that the public has a sufficient interest in the preservation of oil and gas from waste to justify legislation on the subject. Something has been done in this direction already by the acts regulating the plugging of abandoned wells. . . . In the disposition he may make of it (private property) he is subject to two limitations. He must not disregard his obligations to the public. He must not disregard his neighbor's rights. If he uses his product in such a manner as to violate any rule of public policy, or any positive provisions of the written law, he brings himself within the reach of the courts. If the use he makes of his own, or its waste, is injurious to the property or the health of others, such use or waste may be restrained, or damages recovered therefor; but, subject to these limitations, his power as an owner is absolute until the legislature shall, in the interest of the public, as consumers, restrict and regulate it by statute.'" Again the Supreme Court, in the same case, at page 207, referring to *Townsend v. State*, 147 Indiana 624, said: "In a full opinion reviewing the nature of the ownership in oil and natural gas, the power of the state to regulate and control their use and waste in the interest of all those within the gas field and of the public at large was elaborately considered. Reviewing its own previous adjudications, which we have

cited, and those of the supreme court of the state of Pennsylvania, to which we have also referred, it was decided that the owners of the surface of the land within the gas field, whilst they had the exclusive right on their land to sink wells for the purpose of extracting the oil and gas, had no right of property therein until by the actual drawing of the oil and gas to the surface of the earth they had reduced these substances to physical possession. It was further held that in consequence of the nature of the deposits, of their transmissibility, of their interdependence, of the rights of all and of the public at large, the state could lawfully exercise the power to regulate the right of the surface owners among themselves to seek to obtain possession, and to prevent the waste of the products in which all the surface owners within the area wherein the gas and oil were deposited, as well as the public, had an interest, because in the preservation of these substances the well-being and prosperity of the entire community was largely involved. And it was upon the opinion announced in that case that the court rested its decree in the case now under review."

Section 21a of our statute provides, among other things, for the levy of charges necessary to supervise and protect deposits of oil and gas within the state, "in which deposits the people of the state of California are hereby declared to have a primary and supreme interest." (Stats. 1917, p. 1598.) This declaration is in accord with the prevailing opinion, both legislative and judicial, in the many jurisdictions where the exploitation and waste of such natural resources as gas and oil have attracted and received intelligent public consideration.

Whatever refinements may be suggested as to the definition of the nature of the property right in gas and oil beneath the surface and uncaptured, we are entirely satisfied that the waste of these natural resources may be regulated and the unreasonable waste thereof may be prohibited in the exercise of the police power of the state, and that the statute in question is not subject to the objections first advanced by the petitioners.

It is next contended that the term "unreasonable waste" has not been defined by the statute; that it is so uncertain in its meaning and so devoid of a rule or standard of conduct that an ordinary person cannot determine in advance what he may and may not do, and that it is therefore void within the doctrine of such cases as *International Harvester Co. v. Kentucky*, 234 U. S. 216, 221; *U. S. v. L. Cohen Grocery Co.*, 255 U. S. 81, 65 L. Ed. 516; *Conally v. General Construction Co.*, 269 U. S. 385, 391; *U. S. v. Frink Dairy Co.*, 274 U. S. 445, 71 L. Ed. 1146; *Hewitt v. Board of Medical Examiners*, 148 Cal. 590.)

Courts are entitled to take judicial notice of the condition and development of the petroleum industry. (*Gilbreath v. States Oil Corp.*, 4 Fed. Rep., 2d Series, 232.) The present status of the importance of petroleum and gas in industry is stated in the recent case of *Boone v. Kingsbury*, 206 Cal. 148, 181. Courts may also take judicial notice of all matters of science and common knowledge. (*Reynolds v. McMan Oil & Gas Co.*, 11 S. W., 2d Series, 778, 784.) Facts relating to the general nature of so-called oil "sands" which also contain natural gas, such as are found in this state, and the physical and economic laws governing oil and gas production, the present

general economic status and the necessity and pressing demand for conservation to prevent waste in the gas and oil producing industry, may be found in the following scientific reports referred to by counsel, viz.: Report 111 of the Federal Oil Conservation Board to the President of the United States, Feb. 25, 1929; Bulletin 194, Department of the Interior, Petroleum Technology 61, published as a report of the Bureau of Mines in 1921 by Carl H. Beal and J. O. Lewis; Bulletin 232, Department of the Interior, Manual for Oil and Gas Operations, prepared by T. E. Swagart and C. E. Beecher, 1923; Technical Paper 322, Department of the Interior, Experiments in the Use of Back Pressures on Oil Wells, T. E. Swigart and C. R. Bopp, 1924; Department of Commerce, Mineral Resources of the United States, 1927, Part II, pages 129-137, Natural Gas, by G. R. Hopkins and H. Backus; Department of Commerce, United States Bureau of Mines, 1929, H. C. Miller, Function of Natural Gas in the Production of Oil; Reports of American Bar Association, 1927, vol. 52, pages 577 et seq.

For present purposes it need only be noted that oil in this state is found under layers of rock in a sand or sandstone formation termed a lentille or "lentil," under pressure caused by the presence of natural gas within the formation. The layers of rock thus form a gas-tight dome or cover for the oil reserve. The oil adheres in the interstices between the sand particles. The natural gas may be in a free state at the top of the dome, but is also in solution with the oil, thus increasing the fluidity of the oil and the ease with which the oil is lifted with the gas in solution when the pressure on the gas is released by drilling into the oil "sand." It is estimated that only from ten to

twenty-five per cent of the total amount of oil deposited in a reservoir is ultimately recovered, depending on the natural characteristics of the reservoir and the methods employed in utilizing the lifting power of the gas. The importance of gas in the oil-producing industry has, therefore, become a question of great concern to the industry itself and to government, to the end that its function may be fully utilized without waste. It fairly appears on this application that, depending on its location in the oil reservoir, the extent of the oil "sand," the degree of pressure within the formation, the amount of oil in the "sand," the amount of gas in solution with the oil, the porosity of the "sand" and other considerations, each oil and gas well has a best mean gas and oil ratio in the utilization of the lifting power of the gas and the production of the greatest quantity of oil in proportion to the amount of gas so utilized, and which may be computed as to each individual well to a reasonable degree of certainty and be regulated accordingly. Gas, therefore, which has been allowed to come to the surface without its lifting power having been utilized to produce the greatest quantity of oil in proportion, may be said to amount to an unreasonable waste of natural gas.

That the legislature intended to prohibit such a waste of natural gas, and so defined the term "unreasonable waste," is quite apparent from a consideration of the provisions of a portion of section 8d of the act. Section 8d relates to the procedure upon complaint of undue waste filed with the director of natural resources, and the portion thereof immediately quoted is offered to us by petitioners as the only statement in the act of any standard of "unreasonable waste," viz.: "If it shall appear that gas is being pro-

duced from any oil well or wells in quantities exceeding a reasonable proportion to the amount of oil produced from the same well or wells, even though it is shown that such excess gas is being used in the generation of light, heat, power or other industrial purpose, and that there is sufficient other gas available for such uses from other wells in the same or other fields in which the gas produced is not in excess of the amount which bears a reasonable proportion to the amount of oil produced from such other wells, and that there are adequate gas-pipe-line connections between such other wells and the place of utilization of such gas, the state oil and gas supervisor shall hold that such excess production of gas is unreasonable waste thereof if such holding will not cause an unreasonable waste of gas in any other field." It would seem, therefore, that the legislature has plainly adopted the standard so expressed, viz.: that gas may not be produced, under existing conditions where the production thereof so greatly exceeds the market demand therefor, in quantities exceeding a reasonable proportion to the amount of oil produced, as the standard to be applied and beyond which the production is prohibited as being an unreasonable waste of natural gas.

The standard so adopted by the legislature is, we think, not objectionable as being too vague or uncertain of application. The best mean ratio, or the amount of gas which bears a reasonable proportion to the amount of oil produced, may vary for each reservoir or deposit of oil, depending on the natural characteristics above mentioned, and may, and probably does, vary for each well drilled into the same reservoir, depending on the location of the well and other factors. Therefore, because of the many

and varying conditions peculiar to each reservoir and to each well, which will bear upon a determination of what is a reasonable proportion of gas to the amount of oil produced, it may be said that it would be impossible for the legislature to frame a measure based on ratios or percentages or definite proportions which would operate without discrimination, and that what is a reasonable proportion of gas to the amount of oil produced from each well or reservoir is a matter which may be ascertained to a fair degree of certainty in each individual case. The adoption, therefore, of such a measure seems to us to be within the scope of cases upholding other legislative enactments which have employed the so-called "rule of reason." Citation of authority is not necessary to support the statement that the standard of reason has been applied in many cases where certainty is less capable of measurement than in the present case, for instance, in statutes prohibiting unreasonable restraints of trade, the common law rule of a reasonable use of water by riparian owners, the rule of law regulating the duty of care, etc. Instances "where a man's fate depends on his estimating rightly, that is, as the jury subsequently estimates it, some matter of degree," are common. (See *Nash v. United States*, 229 U. S. 373, 377.)

The so-called "price" and similar cases relied upon by the petitioners as establishing the contrary doctrine, and above cited, involve the uncertainty of man's judgment as to what is an unjust, or unreasonable price, or a current rate, or fair market value, in fluctuating or uncertain markets, so as to make the risk of conduct so great as to be without the pale of certainty required for the terms of a

statute. The case of *Hewitt v. Board of Medical Examiners, supra,* is also clearly distinguishable, in that the prohibition against gross and improbable statements in medical advertising involved therein does not define any measure upon which two persons may agree within any degree of certainty. The argument is made that the same conclusion must be reached in respect to the standard of reasonableness required by the present statute, for the reason that the standards applying the "rule of reason" in cases said to be analogous have been gleaned from or formulated by previous legislation or by many prior decisions or are within the common experience of mankind. But this argument is not persuasive when it may be said that scientific knowledge and oil and gas operating experience have achieved a similar degree of certainty in the field in which the present standard will apply. Whether the evidence sustains the ratio applied by the court in this case under such standard is a question on the merits of the appeal and is not pertinent to a determination of the merits of this application.

Objection is made to the provision of section 8b of the act that ' the blowing, release or escape of natural gas into the air shall be prima facie evidence of unreasonable waste," as inconsistent with other provisions of the act which it is claimed authorize some waste of gas in the production of oil. The state has the power generally "to prescribe the evidence which shall be received and the effect which shall be given to it in her courts, and may exert this power by providing that proof of a particular fact, or of several taken collectively, shall be prima facie evidence of another fact." (*Lindsley v. Natural Carbonic*

Gas Co., 220 U. S. 61.) In prescribing that any waste shall be prima facie evidence of unreasonable waste, the state has cast upon the party found to be wasting gas the burden of justifying the same. A statute which casts the burden of proof upon the defendant in a criminal action upon the proof of certain facts for whose existence he is responsible, has been upheld. (*People v. Osaki*, 79 Cal. Dec. 244.) As applied to a civil action a statute imposing the burden of proof is freed from the objections incident to the rules inherent in a criminal prosecution and cannot be avoided for any reason suggested by the petitioner or otherwise apparent.

It is contended that the real purpose of the statute is to curtail the production of oil so as to regulate and stabilize the market price thereof. We cannot agree with this contention. Obviously the enactment is an effort on the part of the legislature to conserve for present and future needs great natural resources in which the people of the state are interested. It may be that the enforcement of the statute throughout the gas and oil producing sections of the state may have an effect upon the market price of oil. For this reason the subject matter of the act is a delicate one for legislative treatment and judicial cognizance. But the fact that the field of economic law to some extent may thus be invaded may not justify the avoidance of the statute. As we view the terms of the act the primary function of gas in the production of oil is recognized, and its complete utilization in that respect, without unnecessary waste, is attempted to be safeguarded. The additional function of the gas in providing light and heat for manufacturing and domestic purposes is also recognized, and

the effort is made to compel the fullest utilization as to both functions. The act, without doubt, was a response to a growing recognition that the continuing and increasing waste of the propulsive energy of gas underground and of its full energy above ground was unreasonable and should be inquired into and regulated, to the end that the public convenience and general prosperity of the commonwealth be promoted. Such legislation should not be stricken down because there may be an incidental and unavoidable interference in the economic field. The result complained of—the lessening of the daily production of oil—if it follow from the operation of the statute, is a matter of concern for the legislature and cannot of itself make void a police measure which is otherwise a constitutional exercise of the legislative power. "At least," as was stated in *Noble State Bank v. Haskell*, 219 U. S., at page 111, "if we have a case within the reasonable exercise of the police power, as above explained, no more need be said."

Some argument also is advanced that the statute is unconstitutional because it embraces more than one subject and that the title does not express the subjects embraced in the act; that the statute impairs the obligations of contracts and that it deprives petitioners of the equal protection of the laws and grants special privileges and immunities. We have considered these arguments and, except such as are related to the matters herein elsewhere discussed, we deem it unnecessary to give them any further notice.

The final question to be considered is whether the particular preliminary injunction ordered by the trial court

violates any constitutional guaranties. The terms of the order in establishing the gas-oil ratio have been hereinbefore specifically noted. It is contended that the enforcement of the terms of the order will require the shutting down of well No. 4 of the petitioner, Star Petroleum Company. Conceding this to be so, it is the contention of the respondents that the operator is in no position equitably to insist that that well, which is called a "waster," may operate to the manifest detriment of the other operators in the field and to the public in general. There are twelve oil and gas zones in the Santa Fe Springs oil field, varying in depth from 3450 to 8000 feet. The area of land within the oil field is divided into not less than 1145 parcels at the surface. These parcels are owned of record by more than 110 individuals and corporations. Many of the parcels are rectangles less than 75 feet by 100 feet. The Star Well No. 4 is on one of the smaller parcels, being located within a radius of 137 feet from the exterior boundaries of the parcel on which it is located. This well has withdrawn the equivalent of all the recoverable oil within said exterior boundaries and has withdrawn gas and large quantities of oil from the lands of its neighbors. Under the rule in this state such withdrawal is recognized as lawful and without trespass. Without more, however, the foregoing facts with reference to this well may be said to be insufficient upon which to base an injunctive order. But when it further appears that in the operation of this well the natural gas-oil ratio is injurious to the rights of all of the adjoining land owners and to the public in general by reason of the unreasonable waste of gas in the operation thereof, we have no hesitancy in saying that it should be shut down until more efficient methods are em-

ployed to conserve the wasted product. The statute held valid in the case of *Ohio Oil Company v. Indiana, supra,* permitted no waste of gas whatsoever for a longer period than two days after gas or oil had been struck. The margin between no waste at all and a reasonable waste in recognition of the propulsive function of the gas is largely one of fact. In the ascertainment of the fact the legislature has vested in the superior court full power and duty in the premises. It is contended by the petitioner that the statute, as applied by the court, has made it practically impossible to profitably extract the oil. This same contention was advanced with seemingly more justification, but was rejected, in the case of *Ohio Oil Company v. Indiana, supra.*

As we understand the order the natural gas outlets in the entire field were taken as 285,000,000 cubic feet of gas per day, determined by the beneficial uses to which such gas could be put, and which contained a certain tolerance for necessary and unavoidable waste and the fluctuations in the demands for the same. The court then, for safety, increased the amount by some 10,000,000 cubic feet and fixed the daily "Allowed Gas Production" for the entire field at such increased amount. It then prorated this "Allowed Gas Production" among the separate operating properties of the defendants and in connection therewith estimated the "Potential Oil Production" of the field at 237,576 barrels of oil per day. In other words, the court limited the total quantity of gas which might be produced from the field and allotted proportional amounts thereof to the separate parcels of land of the defendants based on the estimated potential oil production of each

parcel. As to the facts, there is no serious dispute. The experts whose testimony was received by the trial court were not in accord as to the proper methods to apply in enforcing cooperation in response to the statute. Reading the act as a whole, it cannot be said that the method of its enforcement adopted by the court was unlawful or improper. We find no reason at this time to interfere with the action taken. The court reserved to itself the right to modify the preliminary injunction as occasion may require, and this, we assume, the court will do if and when, by test and experience, other proper methods may be discovered and applied to the correction of the evil of unreasonable waste of this natural resource. Other points need not be discussed.

The writ of supersedeas is denied and the order to show cause is discharged.

SHENK, *J.*

We concur:

RICHARDS, *J.*
CURTIS, *J.*
PRESTON, *J.*
LANGDON, *J.*
SEAWELL, *J.*
WASTE, *C. J.*

Appendix C.

L. A. No. 12311. March 26, 1931.

In bank.

People of the State of California on Relation of Fred G. Stevenot, Director of Natural Resources of the State of California, plaintiff and respondent, vs. Associated Oil Company, *et al.*, defendants; Twin Bell Oil Syndicate, Second Twin Bell Syndicate and Star Petroleum Company, defendants and appellants.

This is an appeal from an order granting a preliminary injunction. The action was brought against some forty-three oil producers in the Santa Fe Springs Oil Field in Los Angeles County to enjoin the unreasonable waste of natural gas pursuant to the provisions of the so-called "Oil and Gas Conservation Act" of 1915 (Stats. 1915, p. 1404), as amended in 1929 (Stats. 1929, p. 923).

After notice and hearing the court, on March 19, 1930, issued a temporary injunction as prayed for in the complaint. The terms of this injunction were modified on March 28, 1930. From the injunction as modified this appeal was taken by three of the defendants in the action, to wit: Twin Bell Syndicate, Second Twin Bell Syndicate and Star Petroleum Company. An application was then made by these appellants for a writ of supersedeas to stay the operation of the injunction pending the appeal therefrom. This application was denied by this court on December 3, 1930. (People v. Associated Oil Co. *et al.*, 80 Cal. Dec. 607.)

The order appealed from is attacked first on the ground that the statute under which the action was brought is

unconstitutional, and secondly that the injunction issued is void as to these appellants by reason of alleged discrimination against them, but particularly as against the operation of well No. 4 of the Star Petroleum Company.

The questions involving the aileged unconstitutionality of the statute were presented for determination and were decided by this court contrary to the appellants' contentions upon the application for the writ of supersedeas. The terms of the temporary injunction were also set forth in the opinion rendered on that application.

It will be unnecessary to discuss the several questions raised by the appellants as to the alleged unconstitutionality of the statute for the reason that they are the same as those presented and determined in the former proceeding. It was also there stated by this court that, conceding the effect of the preliminary injunction to be that Star Well No. 4 would have to be shut down, the showing of the unreasonable waste of gas therefrom would justify it.

When the matter of the present appeal came on for argument on December 5, 1930, counsel for the appellants stated that the effect of the preliminary injunction had been in fact to kill Star Well No. 4, and that the circumstances thereof demonstrated the discriminatory character of the injunctive order as to that company; whereupon counsel for the respondent immediately disputed the fact. Thereafter on December 9, 1930, the respondent filed an application herein for leave to produce evidence pursuant to section 956a of the Code of Civil Procedure as interpreted in Tupman v. Haberkern, 208 Cal. 256. In response to the application an appropriate order was entered in the minutes of this court. The Hon. Leon R. Yank-

wich, a judge of the superior court in and for the county of Los Angeles, was appointed a referee to take the evidence, either orally or by affidavit, and report the same to this court. In due time the referee filed his report which consists of affidavits and exhibits attached thereto presented by the respective parties. This evidence shows beyond dispute that Star Well No. 4 has been on continuous production from a time prior to the commencement of the action until the expiration of the time covered by the referee's report, which included the entire month of December, 1930. During the month of March, 1930, when the original injunctive order was issued, the daily average production of gas in the entire Santa Fe Springs Oil Field was 565,705,000 cubic feet per day. The injunctive order fixed the allowable daily production at 334,000,000 cubic feet per day. Taking into consideration and eliminating the amount of gas put to beneficial use, the court determined that any additional blow into the air in excess of 100,000,000 cubic feet per day was unreasonable waste. The Star Petroleum Company was originally allowed 3,000,000 cubic feet per day. By the modified order this company was allowed 3,285,000 cubic feet per day. This was an allowance to these appellants of 4,000 cubic feet of gas to each barrel of oil produced as against an average of 2,600 cubic feet of gas to each barrel of oil throughout the entire field. On this state of the facts any claim of unlawful discrimination between the Star Petroleum Company and other operators in the field would seem to be without merit.

The record now before us shows that from March and June of 1930 the Star Petroleum Company far exceeded

the allowance of gas specified in the order of court, and that it came within the allowance only because the average daily production of gas in the entire field declined to such an extent that this company could not produce even the allowable amount, due to the depletion of gas in zones in the field. In January of this year the daily average of production of gas in the entire field was reduced to 177,251,000 cubic feet. This reduction was due wholly to the decrease in gas pressure in the various sands of the field. The production of oil in the whole field was necessarily reduced proportionately. It therefore appears that the very thing that the state was endeavoring to prevent, namely, the improvident and wasteful use of natural gas, has been frustrated by unregulated operations in the field or by operations conducted in spite of attempted regulation, with the result that the further recovery of oil in the discovered zones in this field has been unduly reduced by the heretofore wasteful process, and that such further recovery must depend on artificial gas repressuring or putting the wells on pumps. It is estimated that only about twenty per cent of the gas has been beneficially used and that a very large proportion of the oil deposit has not been recovered from the discovered and developed zones in this field. It would seem to require no argument to support the statement that such a situation falls within the purview of public regulation under the police power, not only to the end of protecting the correlative rights of the owners and operators in this field, but also the rights of the public which has a direct interest in safeguarding this important natural resource.

The appellants, particularly the Star Petroleum Company with reference to its Well No. 4, insist that if it had

been compelled to observe the injunctive order it would have been required to shut down the well, but there is no showing that it endeavored to comply with the order by "beaning back" (restricting the outlet), or by the employment of other means to prevent the prohibited waste. It is insisted that this appellant is being penalized because it happened to strike the top of the structure where the gas pressure was greatest. In effect this is a contention that it should be permitted to exercise a right to the prejudice of a co-equal right possessed by its neighbors in the field. This contention cannot be sustained on well known principles of law with reference to the exercise of rights in private property generally, but it also runs counter to adjudications on the subject of gas and oil development regulations by the highest court in the land. (Ohio Oil Co. v. Indiana, 177 U. S. 190; Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61; Standard Oil Co. v. U. S., 221 U. S. 1; Walls v. Midland Carbon Co., 254 U. S. 300.) The decisions of the Supreme Court of the United States have recognized and determined that the states have the right to enact laws, under the police power, providing for the conservation of the oil and gas resources within their borders and that such laws, if not purely arbitrary or unreasonable, do not contravene the due process and equal protection provisions of the Federal Constitution or take property for public use without compensation. In harmony with the reasoning of the Supreme Court of the United States in the foregoing cases, conservation measures have been approved by the highest courts of the oil and gas producing states, as is shown from the many cases cited from those jurisdictions in the briefs of

respondents and amicus curiae, with the exception of Montana (Gas Products Co. v. Rankin, 63 Montana 372).

We reiterate that the legislation in question has lawfully vested in the superior court the power to determine what wastage of gas in the production of oil is reasonable or unreasonable. Whether such wastage be reasonable or unreasonable is a question of fact and should be determined in view of the necessity of one landowner to make productive use of his parcel, in view of the equal right of the adjoining owners not to be deprived of correlative production from their parcels, and in view of the right of the public to prevent the waste of that which cannot be replaced.

The preliminary injunction generally is supported by the facts presented to the court. That these particular appellants have not been discriminated against is evidenced by the terms of the order itself and by the record present before the trial court and before this court on the supplemental hearing. The order is therefore affirmed.

SHENK, *J.*

We concur:

PRESTON, *J.*
RICHARDS, *J.*
SEAWELL, *J.*
CURTIS, *J.*
LANGDON, *J.*
WASTE, *C. J.*

Appendix D.

REPORT IV OF THE FEDERAL OIL CONSERVATION BOARD.

Washington, June, 1930.

To the President of the United States:

* * * * * * * *

ECONOMICS OF NATURAL-GAS DISTRIBUTION.

Recent development in long-distance transportation of natural gas constitutes one of the most noteworthy achievements in modern economic history. Major industrial areas, hitherto dependent upon solid or liquid fuels, have been brought within the range of natural-gas service through the construction of pipe lines covering distances which, until recently, were considered beyond the limits of immediate possibility.

Recognition of the merits of natural gas as an ashless fuel of high heat value, definite conclusions as to the adequacy of its supply, and surveys of potential demand in areas under consideration, were combined with the engineering ability and financial support necessary for these new accomplishments in transportation. Much of this construction has been so recently completed that its full effect is not yet apparent.

During 1928 more than 1 trillion 568 billion cubic feet of natural gas was produced and delivered to consumers an increase of 8 per cent over corresponding figures for 1927. Of the 1928 distribution, 36.6 per cent was consumed as a fuel in oil-field operations and 7.3 per cent for fuel needs at petroleum refineries, making a total of nearly 44 per cent consumed within the oil industry. Manufac-

ing and industrial plants utilized 19.5 per cent of the total, 4.9 per cent was consumed in the generation of electric power at public-utility plants, and 11.2 per cent was used in the manufacture of carbon black. A total of 79.5 per cent was used in industry and 20.5 per cent for domestic purposes.

The quantity of natural gas produced and delivered to consumers during 1929 reached a total of approximately 1 trillion 800 billion cubic feet, an increase of about 15 per cent over 1928. Natural-gas production in Louisiana, the point of origin for several of the longer interstate lines completed during this past year, increased nearly 30,000,000,000 cubic feet, or approximately 13 per cent, over 1928. Withdrawals of natural gas from high-pressure wells in Texas during 1929 were approximately 18 per cent greater than in 1928. Increased production was reported also for Oklahoma, and in California the 1929 natural-gas production was substantially greater than during the preceding year.

Although sufficient information is not yet available to determine all trends in consumption, some tendencies are apparent. The consumption of natural gas as a fuel in the generation of electric power at public-utility plants reached a total of 112,847,040,000 cubic feet, as compared with 77,173,517,000 cubic feet during 1928, an increase of 46 per cent. Purchases of natural gas for distribution by 98 public-utility gas companies during 1929 were 49.7 per cent greater than in 1928. Preliminary data from trade sources indicate that the production of carbon black during 1929 was approximately 45 per cent more than in 1928, from which it may be inferred that the natural-gas

consumption in the manufacture of carbon black increased proportionately. This increased carbon black production was largely confined to Texas. Preliminary information from State sources indicates that 200,000,000,000 cubic feet of residue gas was used in carbon-black manufacture in Texas during 1929, as compared with approximately 63,000,000,000 during 1928.

The number of communities in Texas served with natural gas has increased from 82 at the close of 1926 to 490 at the end of 1929. In Oklahoma 285 cities and towns were receiving natural-gas service at the close of 1929, as compared with 254 at the beginning of the year. The pipe line from Wyoming to Ogden and Salt Lake City added 13 communities in Utah to those served with natural gas. It is reported that 20 cities and towns in Arkansas and Missouri were included in the natural-gas service afforded by the pipe line completed from northern Louisiana to the St. Louis industrial district. The recently completed pipe line from Louisiana across Mississippi, Alabama, and Georgia is planned to serve 40 communities in these three States.

Prior to 1927, transportation of natural gas over a distance of 250 miles was regarded as an outstanding engineering accomplishment. In July, 1927, a line 20 inches in diameter was started at Pampa, Gray County, Tex., to connect the gas fields of the Texas Panhandle with Kansas City, Mo. The whole system, when completed in September, 1928, was 382 miles in length and was estimated to be capable of handling a maximum peak-load delivery of 250,000,000 cubic feet daily. In December, 1927, another long natural-gas transmission line was

started. This line, 22 inches in diameter, was laid from the Amarillo field, in the Texas Panhandle, to Denver, Colo., a distance of 340 miles, and was referred to as one of the greatest enterprises undertaken in the gas industry. During 1929 this system was extended eastward from Pueblo to several towns within a distance of approximately 50 miles, and plans are reported under consideration to extend it to other communities nearer the Kansas line.

The completion of these lines was followed closely by other developments. Some major pipe-line projects recently completed are:

1. Memphis has been supplied with natural gas from Louisiana since December 28, 1928.

2. New Orleans is served with natural gas through an extension of the pipe line which formerly terminated at Baton Rouge.

3. The St. Louis industrial district is supplied with natural gas through a 450-mile pipe line from Louisiana.

4. A 420-mile pipe line has been built across Mississippi, Alabama, and Georgia to deliver natural gas from Louisiana to Birmingham, Ala., Atlanta, Ga., and other communities in these States.

5. A 250-mile pipe line has been laid to San Francisco from the Buttonwillow and Kettleman Hills areas in southern California, and is being paralleled by a second line.

6. Salt Lake City and Ogden, Utah., are served with natural gas from Baxter Basin, Hiawatha, and Clay Basin fields in Colorado, Wyoming, and Utah.

7. Monterrey, Mexico, is served with natural gas from the Jennings field, Tex., through a pipe line crossing the international border at Roma, Tex.

8. Approximately 200 miles of pipe line carry natural gas from the Jal area, Lea County, N. Mex., to El Paso, Tex.

Projects under recent consideration tending to extend areas served with natural gas, although actual construction has not been started, include a 950-mile pipe line from the Amarillo field, in Texas, to Chicago; the extension of the present pipe line to San Francisco northwards to Oregon and Washington; the extension of the pipe-line system in the Rocky Mountain district to include Butte, Anaconda, and other communities; the conversion of oil pipe lines to the transport of natural gas; and the construction of necessary additions to serve mixed gas to certain cities along the Atlantic seaboard.

Reviewing this list of natural-gas and anticipating the building of still longer lines, the question naturally arises as to what new conditions have made possible the building of natural-gas distributing systems extending farther and farther from the gas fields.

The subject is one in which both engineering and economic factors are involved. Every natural-gas distribution project requires the detailed consideration of at least three major factors, namely:

1. Assured supplies of gas for long-time periods.
2. Assured markets.
3. Costs of construction and operation.

In so far as the decision to undertake a natural-gas distribution project is concerned, the first two items have relatively more weight than the third. In other words, cheaper pipe-line construction, made possible by the use of improved methods and the application of advanced engineering science, is only one of several items in establishing the first cost of the project; it is essential to have an assured gas reserve, capable of supplying a market over a long-time period, in order to attract the necessary capital to finance the project.

Many long natural-gas transmission lines probably would have been built to connect newly discovered fields with marketing centers even with higher construction costs, for the size and nature of the markets and the extended life of proved reserves would assure the amortization of investment in a connecting pipe line long before the natural reservoirs were depleted. Improved methods of pipe-line construction have decreased the cost of the long gas lines built during the past several years. The use of large-diameter pipe made of high-carbon steel with greater ultimate strength, and the handling of gas at high pressures, are developments of outstanding importance in long-distance transmission.

With the advent of conditions requiring a pipe line to deliver maximum peak load of or exceeding 250,000,000 cubic feet per day, the important problem of design of a natural gas pipe-line project includes the study of:

1. Size and weight of line and working pressures.

2. The number and size of compressor stations, together with the desirable compression ratios.

3. Relationship between investment and operating costs with the view of obtaining a properly balanced and economical system.

The principal item of cost in a pipe-line project is the cost of the pipe itself. The cost of the pipe varies directly as the weight, which in turn varies directly as the diameter multiplied by the thickness. With increasing diameter, the thickness of the pipe must be increased proportionately to withstand the same pressure. Because an increase in the diameter of pipe increases the capacity more rapidly than the corresponding increase in cost, the general tendency has been to use pipe of sufficiently large diameter to deliver the capacity required at pressure up to 350 or 400 pounds per square inch. However, the possible economy which may be effected in gas transportation through lines of smaller diameters and greater wall thickness under pressures as high as 1,500 pounds per square inch is being considered at the present time. It has been suggested that while the costs per lineal foot of line may be more for this type of construction, the cost per cubic foot of natural gas delivered may be less.

Several gas companies have reduced the cost of their pipe-line construction materially by using so-called telescope lines. These lines are made up of sections of pipe of different diameters, the diameter increasing in the direction of flow, as the pressure decreases. For example, where a 16-inch line is required, its equivalent may be built with 14, 16, and 18 inch pipe; or a line of uniform diameter may be built with the weight of pipe decreasing in the direction of flow so that pipe with thinner walls is used where the pressures are lower. Telescopic design

of pipe lines has the effect of reducing the total weight of the pipe and consequently the cost. Telescopic lines should be especially economical where high initial pressures exist and where there are long distances between compressor stations. The efficiency of flow through telescopic lines is being studied by Federal and industrial agencies to determine the advantage in amount of gas handled in these lines as compared with lines of constant diameter.

The increasing use of better welding methods is changing the type of pipe-line construction and effecting economies. In the manufacture of pipe, automatically controlled process welding by the electric-arc method has made it possible to fulfill some of the requirements of high-pressure pipe design. Extensive use of oxyacetylene welding in the field has marked the passing of large, heavy, cast-iron fittings. The all-welded and forged-steel flanged manifold is a good example of the improvement that has come about through the use of welding in place of cast-iron fittings.

Further economies in pipe-line construction have resulted from the use of longer lengths of pipe for main trunk-line work. With the generally accepted use of welding on trunk lines, the demand for 40-foot lengths of plain-end pipe has increased. Forty-foot lengths effect a considerable saving in construction costs, and the trend is definitely toward the use of 40-foot lengths, or possibly longer, for welded trunk lines.

Only recently electric-arc welding has come into use for the welding of pipe lines in the field. Advocates of the electric-arc method believe that it will reduce construction costs and have other advantages. Progress is being made

in the development of automatic welding processes for field service. When perfected, these methods will tend to reduce the cost and increase the rate of construction.

Machinery has largely replaced the older hand methods of pipe-line construction. Costs have been lowered by laying, hauling, hoisting, and handling pipe with machines and tractors especially designed for this work.

Corrosion is an important factor in determining the cost of a pipe line. The amount of expenditure warranted for protective pipe coatings depends upon the nature of the soil in which the pipe is to be laid and the relative corrosive effects of the soil. The economic value of good pipe coatings has become more and more appreciated during the past few years. Many operators are using costly pipe coatings, and experience has proved that such protections are economically justified. Frequently the life of a pipe line in the ground may be prolonged 50 per cent by the application of proper pipe coating.

Until a few years ago little or no attention was given to the economy possible with a gas-tight transmission system. Now pipe lines are given careful leakage tests. Also, provision is made for the removal of condensates, sands, and other foreign material which would decrease the capacity of lines and thus increase the compression costs.

Need of Full Utilization of Gas.

The expansion of facilities for the distributing natural gas has demonstrated the public demand for this best of fuels. By virtue of its convenience as a domestic fuel and its economy as an industrial fuel, natural gas is winning

recognition in communities and districts where it had been unobtainable until technical skill combined with courage on the part of the public utilities made its wide distribution a reality. With this increased and growing market for natural gas, not only the gas produced from the so-called dry-gas reservoirs is in demand but there is a growing realization of the commercial value of the gas delivered to the surface in conjunction with the production of oil. There has also been a widespread realization of the importance of natural gas in its function as a propulsive agent in the production of oil. So it is that natural gas is now coming into its own as an item of large significance in the balance sheet of the oil operator.

The oil industry now sees substantial profits in this fuel of high heating value which was previously disregarded. Attention had been repeatedly called to the enormous waste involved in the escape of gas into the air, but since above-ground storage of natural gas is plainly impracticable from the standpoint of cost, many executives, who thought in terms of oil, regarded escaping gas as unavoidable waste. Now that this natural resource, produced with the oil, has taken on a commodity value at the well as a result of long-distance pipe lines, opinions and policies have changed. Moreover, production engineers are now pointing out the even great importance of gas as the most efficient agent in extracting oil from the ground, with the result that it is realized that the prevention of the escape of gas is highly desirable in the practical business of producing oil.

Yet the volume of gas that escapes into the air is not commonly appreciated by many owners or operators, or,

if realized, the large quantities thus lost frequently are taken as indicative of inexhaustible reserves rather than of wasted wealth. The latest legislative effort to prevent this waste is the California gas law, which has been described as based on good technology and good economics. As reported by the gas administrator of that State, the amount of natural gas blown to the air during the latter part of 1929 was nearly a billion feet a day, or more than was being used in the entire State, and in some individual oil fields the ratio of waste to use is even now much worse. Nor is California the only State in which the waste of gas is expressed by large figures.

The economic arguments for stopping this waste and enforcing full utilization relate to present profits of the producers and future benefits of the consumers. In the Kettleman Hills oil field in California the gas from the few wells now producing, even without including its gasoline content, is worth more, at present field prices, than the high-grade oil this gas brings to the surface. Yet with the traditions of the industry influencing current thought, the output of oil is the chief consideration, and while earnest efforts are being made at Kettleman Hills to hold back oil production to the requirements of market demand, too little thought is given to the State's contention that "the blowing, release, or escape of natural gas into the air shall be prima facie evidence of unreasonable waste." Nor is there seemingly any recognition of the obvious fact that for the nearly 350,000,000 feet of gas now escaping daily, because less than 20 per cent of the present flow from this source can be marketed, the operators and owners receive no return now or at any time.

Gas with a value, at the well, of millions of dollars a year is being blown into the air, an invisible but actual leak.

This blindness to the immensity of the present waste can perhaps be cleared upon by a simple analysis of the statement of the California gas administrator referred to above. If from July to October, in 1929, the amount of blown gas in California actually exceeded the amount utilized, it must follow that at some time in the future the industrial and domestic users of gas will be without gas four months sooner, at the present rate of consumption, than would be the case if this four months' supply had not gone to waste. On the public side, therefore, there is this definite and quantitative relation between waste now and shortage in the future.

Appendix E.

Report III of the Federal Oil Conservation Board. Existing Petroleum Situation in the United States.

Washington, February 25, 1929.

To the President of the United States:

Supplementing its reports of September, 1926, and January, 1928, the the Federal Oil Conservation Board again reviews briefly the existing petroleum situation in the United States. The report now submitted sets forth in broad outline the changes that have taken place in the conduct of a great productive industry and records the progress made in the four years since you placed upon this Conservation Board the responsibility of promoting cooperation between the Government and the oil industry.

* * * * * * * *

Legislative Proposals.

Immediately after the issue of this board's second report, a year ago, the results of a legal study of the situation were reported by a committee of nine representing the Federal Government, the petroleum industry, and the mineral law section of the American Bar Association. This committee of nine was appointed by the Federal Oil Conservation Board and confined its recommendations to Federal legislation. The specific bill thus recommended as a conservation measure would provide, in certain contingencies, relief of oil operators from the provisions of the Federal antitrust acts, with proper safeguards in the public interest. The report of this committee, which also urged similar legislation by the oil-producing States, was

referred by this board to the governors of those States; this proposal now rests with them. That report appears as Appendix A (p. 9).

* * * * * * * *

APPENDIX A.

COMMITTEE OF NINE.

January 28, 1928.

HON. HUBERT WORK,

Chairman Federal Oil Conservation Board.

Sir: The committee of nine, appointed by your board to consider a legislative program for the conservation of gas and petroleum resources, begs to report as follows:

* * * * * * * *

Privately Owned Lands.

We take it that true conservation does not mean the withholding from present use of the Nation's natural resources. It does mean that those resources should be drawn upon without waste and in orderly response to the economic needs of the country. We have devoted attention to ascertaining to what extent and in what manner waste occurs in the production and use of oil, and to how and why the production of oil is not in orderly response to the country's economic demand for it.

* * * * * * * *

The primary and most important cause, both of the failure to recover the full recoverable proportion of the oil content and of production at recurring periods out of all proportion to the demand, is not far to seek and is the same. It consists in the law governing the right of the owner of land to recover oil from it. The law is that

the owner of land has the right to recover from his land all the oil that can be produced therefrom, regardless of whether that oil was originally in place in his ground or has been caused to flow from the ground of others by his action in opening and operating a well on his property. There is no property, in the strict sense, in the oil until it is recovered any more than there is in underground water, and the oil belongs to him who first gets it. The result is that when an oil field is once opened, it is a race between all the owners in the field to recover all each can. It is a race in which they must take part, willy-nilly, or else lose what otherwise they might obtain. It is a race which can be avoided only by the joint action of every one in the field.

* * * * * * * *

The intensity of the race is increased by the function which natural gas plays in the process of production. That function is the subject of a most illuminating report by the technical subcommittee of the American Petroleum Institute gas conservation committee, made up of leading petroleum engineers of the country. It is so valuable a contribution that we append this report as Appendix II (p. 19). Among other things, the report says:

"The data show conclusively that the conservation and efficient utilization of gas are of paramount importance in the conservation and economical production of oil. Gas dissolved in oil makes the oil more fluid, and more capable of movement through the pore spaces of the reservoir rock to the well, the energy stored in the same gas is the chief force behind that movement. The more gas the easier the oil moves and the greater the force available

to move it. To dissipate gas from an oil sand is to lessen the propulsive force and increase the need for it. The energy and solution values of oil-field gas are of tremendous importance. The proper utilization of gas results in greater and more orderly oil recovery at lower cost. The data show that the way to use gas to the best advantage is to use it in its original state, and that the conditions in a sand, once destroyed, can never be completely restored."

Again the report says:

"The data show finally that many, probably most of the best methods for gas utilization can be practiced advantageously only when they can be applied systematically to a whole field; that competitive drilling in individual fields almost inevitably leads to gas waste and lessened ultimate oil production; and that either complete cooperation or unit operation is the ideal operating condition for the conservation of both gas and oil."

Since gas is the most important factor in detaching the oil from the sands and bringing it to the well, and in case of flowing wells to the surface, and since also the oil content is common to the whole field—using "field" in the sense of a single deposit or pool—the release of gas through one well affects all other wells in the same field.

Closely connected with the matter of cooperative development and operation of oil pools is that of conserving the gas content. The waste of gas in actual practice has been great, both in the failure to maintain the gas pressure for oil-producing purposes, and in the failure to put the gas to the valuable economic uses of which it is capable. Enormous quanties of gas have been simply wasted into the open air or burned. We have given particular consideration to this phase of the conservation problem. We are greed that in general the waste of gas

should be forbidden by law. We likewise agreed that suitable legislation to this end is the most important affirmative step to compel conservation that can be taken. Such legislation, if properly devised, will, we believe, not only prevent waste existing at the present time, but will have a decided effect in inducing agreements for the cooperative development and operation of oil fields, and such cooperative development and operation constitutes, we believe, the most important means of fully utilizing and conserving in the true sense our oil resources.

But we are unable for the present to determine just the form that such legislation should take. Ill-advised legislation, no matter how well intended, might do great injury and great injustice; for example, we doubt exceedingly the wisdom of legislation which would simply forbid without any exception the escape of any gas not put to beneficial use after leaving the well. Conditions in the various fields differ so greatly, and actual development has proceeded so far under present practices, that an inflexible rule such as that just mentioned might well mean that some fields would have to be shut down. Any measure compelling conservation will affect some interests adversely, and the mere fact that it does so is not a sufficient reason for not adopting it. But if the measure is too drastic as applied to existing conditions and is so harsh as to work grave injustice, it defeats itself in actual operation and runs the danger at least of being held to be unconstitutional.

The legislation furthermore is legislation which must be adopted by the States. In our judgment, legislation regulating or forbidding the waste of natural gas is primarily within the police powers of the individual States, and at least under present conditions not within the powers of the Federal Government.

The preparation of proper legislation respecting the waste of gas is one that requires a study, both of present

existing conditions and of the existing laws of the oil-producing States. That study we have not been able to make to a sufficient extent to satisfy us as to the exact nature of the legislation which should be recommended. So far as this particular point is concerned, we repeat our statement that legislation forbidding, as a general rule, the waste of gas is vitally necessary, and we recommend that further study be given in the immediate future to the form such legislation should take, and that when that study has been completed definite recommendations on the subject be made to the oil producing States. The legislatures of those States will not meet in regular session until next year, so that there is time for such study before action can be had. We have thought it well, however, to make our report without waiting for the study required on this particular point, as Congress is in session and there is an immediate need for action by it in the particulars we have already mentioned and the further particulars to which we will next refer.

* * * * * * * *

Appendix II.

The Conservation of Gas.

Report of the Technical Sub-Committee of the American Petroleum Institute Gas Conservation Committee, Chicago, Ill., December 2, 1927.

Introduction and Conclusions.

This report is a summary of the voluminous data submitted, in detailed reports, in committee discussions, and in a three-day hearing, at Ponca City, by more than 100

production engineers, geologists, chemists, and physicists regarding the importance of natural gas in oil production and the means for utilizing it most efficiently. These men come from all the important fields of the United States, and represent 3 Federal agencies, 9 universities, the National Research Council, 34 oil companies, and a number of individual activities.

The data show conclusively that the conservation and efficient utilization of gas are of paramount importance in the conservation and economical production of oil. Gas dissolved in oil makes the oil more fluid, and more capable of movement through the pore spaces of the reservoir rock to the well, the energy stored in the same gas is the chief force behind that movement. The more gas the easier the oil moves and the greater the force available to move it. To dissipate gas from an oil sand is to lessen the propulsive force and increase the need of it. The energy and solution values of oil-field gas are of tremendous importance. The proper utilization of gas results in greater and more orderly oil recovery at lower cost.

The data show that the way to use gas to the best advantage is to use it in its original state, and that the conditions in a sand, once destroyed, can never be completely restored; but they show also that the injection of gases into many fields has had highly beneficial effects.

The data show that many methods are of value in conserving gas and utilizing it efficiently, that the effectiveness of each method varies in different fields and with different wells, and that no single method or group of methods can be universally applied. Each well should be

studied as an individual problem and to it should be applied the combination of methods found to give the best results.

The data show finally that many, probably most, of the best methods for gas utilization can be practiced advantageously only when they can be applied systematically to a whole field; that competitive drilling in fields almost inevitably leads to gas waste and lessened ultimate oil production; and that either complete cooperation or unit operation is the ideal operating condition for the conservation of both gas and oil.

Occurrence of Oil and Gas.

Oil and gas originate from various organic materials deposited in sediments and converted into oil and gas by heat and pressure during geologic processes. Differences in the character of the organic material, differences in the amount and duration of the heat and pressure, and differences in the chemical environment result in hydrocarbons ranging from the lightest gas to the heaviest asphalt.

These oils and gases are found concentrated on rock-folds known as geologic structures, in reservoir rocks of greater or less porosity, thickness, and homogeneity. The reservoir rock may be, for example, a single sandstone bed a few feet thick and of uniform porosity, a porous lentil in a limestone, or a great body of poorly consolidated sediments made up of relatively thin and often lenticular beds of pervious sand and impervious shale. The great variety of reservoir rocks gives an equal variety of production conditions. The reservoir pressure in the homogeneous sandstone is likely to be the

same throughout the field; in the limestone bed variations in porosity may induce variations in the pressure; in the alternating sediments the reservoir pressure, the character of the hydrocarbons, and the water conditions may be different in each sandstone layer and in every part of the field. Whatever the character of the reservoir it is commonly referred to as a "sand."

Some productive sands contain oil and gas; some contain gas alone; oil sands without gas are practically unknown. This summary is concerned only with reservoir rocks carrying oil and greater or less amounts of gas.

Gas may be present in an oil sand in one or all of four phases: (a) free; (b) dissolved in the oil; (c) as a liquid, becoming a gas when the pressure is lowered; and (d) adhering to the surfaces or interfaces between the gases and the liquids, the fluids and the solids in a process known as absorption. Each of these phases has its bearing on the efficient utilization of the gas.

The Importance of Gas in Oil Production.

Natural gas in most oil sands is the most important agent in the recovery of oil. In some fields water is the all important expulsive force and in some gravity assists in production, but in most fields water and gravity are of minor importance when compared to the work of gas.

The gas may, and as far as possible should, be utilized as "original gas" before being exhausted from the sand, but when the original gas has been wholly or partly dissipated gas may advantageously be injected.

Value of Original Gas.

Gas in an oil sand should be looked on primarily as a source of energy rather than as a substance. This stored

energy is the prime motive force for the extraction of the oil from the reservoir. It drives the oil through the minute pore spaces of the reservoir rock to the well and lifts or helps to lift it to the surface.

Gas has a second and almost equally important value—its value in increasing the fluidity of the oil. As already noted, part of the gas in an oil sand may be in liquid form; part may be dissolved in the oil. The amount that may be dissolved depends upon the character of the oil and the character of the gas and is proportional to the temperature and the pressure.

The greater the amount of dissolved and liquid gas in an oil the lighter the oil, the less viscous, and the lower its surface tension. Specific gravity, viscosity, and surface tension of the oil are all lessened by the solution of the gas, and as these are lessened the mobility of the oil is increased. Rendered more fluid by the gas, the oil can pass through the intricate, tortuous, interstices of the reservoir and find its way to the area of lower pressure at the well. Greater fluidity, greater mobility, greater ease of movement—these represent the solution value of gas in oil.

It will be noted how these two values supplement one another. The gas makes the oil easier to move; the energy in the gas moves it. These two properties of gas are of prime importance in the production of oil.

When a well penetrates a petroleum reservoir theretofore untouched gas pressure is released about the well and oil and gas begin to flow through the reservoir spaces toward the point of lowered pressure. As the fluid moves toward the well there is a progressive drop in pressure.

With the drop in pressure the free gas expands and drives the oil through the sand; the dissolved gas comes out of solution and becomes free gas; the liquefied gas vaporizes and becomes free gas; and the additional free gas also helps to drive the oil to the well. The progressive liberation of energy increases the velocity of the fluids and overcomes friction as they move through the rock voids toward the point of egress.

It is logical to assume that those winding pore channels which have the greater and more uniform cross section will carry a more mobile fluid, a fluid with a greater proportion of gas, than the other channels, and that this gas portion is augmented by distillation from neighboring channels. The natural gas in endeavoring to escape from the reservoir in such a way as to reduce the stored energy attempts to clear those larger and more uniform pore channels of petroleum, which, when cleared, will permit the free egress of the remaining gas to and out of the well, leaving a maximum of petroleum in the reservoir. If the pressure is too rapidly reduced by permitting too rapid escape of gas from the well the proportion of oil left in the reservoir is increased.

As the pressure is lowered and the dissolved and liquid gas leave the oil the oil becomes more viscous and increasingly difficult to move, and this augments the tendency to leave more oil in the reservoir if the pressure is too rapidly exhausted.

As the production declines the proportion of gas produced with the oil—the gas-oil ratio—increases, and the gas energy declines below the point necessary to flow the well. Thus the flush or flowing period of the field passes.

As the field declines pressures are lower than during the flush period and oil is not so plentiful or so mobile. Gradually oil accumulates in the bottom of the well and the surrounding sand and obstructs the passage of the gas. Pressure is built up behind the oil and when this pressure is great enough the well again flows, the sand near the well is again depleted, and the cycle is repeated. This is the period of intermittent flow.

Finally the amount of oil reaching the well and the amount of gas and gas pressure behind it are not great enough to cause even intermittent flow. Gravity begins to play a more important part in the movement of the oil, especially if the reservoir body be thick. The oil is less mobile, all the gas energy is utilized in bringing the oil to the well, and artificial means must be employed for lifting it. The well has reached the pumping stage.

It is readily seen that throughout the well history the gas present in the oil has facilitated movement toward the well, and that, except for the part that may have been played by other forces such as water and gravity, movement has depended entirely on the gas energy.

In many fields the gas pressure has played a third important role in holding back edge or bottom water or both and preventing its encroachment into the productive parts of the sand. When the gas pressure declines below the hydrostatic head of the water, friction alone delays the water in flooding the field.

Injected Gases.

At almost any stage of the field's depletion gas (either natural gas or some other) may be injected into the sand in an attempt partially to restore original conditions

and thus increase both the immediate and ultimate oil production. It is possible by such injection of gas to restore in part the earlier gas pressures and thus rebuild the energy value stored in the field. There is grave doubt whether the solution value of the gas can be restored.

It seems unlikely that injection of gas restores anything approximating the original conditions. The introduced gas is nearly always lacking in fractions which will liquefy at the restored pressures. The area of contact between the gas and oil is relatively small and diffusion of the gas through the oil is apparently slow. Gas is probably not re-adsorbed at the liquid-solid interfaces. Thus three of the four original phases of the gas are seemingly not recreated; the energy effect of free gas is restored, but the energy effect of the adsorbed gas and the energy and solution effects of the liquid and dissolved gases are not fully restored. Despite these facts, however, the injection of gases is one of the best methods for rejuvenating many fields. The energy effect of the free gas is alone an important asset.

As to the relative values of various gases, the injection of natural gas, preferably of the same composition as that taken from the reservoir, would go farthest toward restoring original conditions of energy and solution. The introduction of identical gas is difficult, however, because the compression of the gas for injection denudes it of some of those constituents which would otherwise liquefy in the reservoir and increase the mobility of the oil.

There is some evidence that the driving effect of air is at least as great as that of gas. Air oxidizes some oils

and makes them more viscous, and hence more difficult to move through the pores. Under certain conditions the air forms explosive mixtures unsafe for fuel purposes, and in many fields, especially those in which sulphur is present, it increases corrosion of the casing and tubing.

Flue gas resulting from the combustion of natural gas may be treated and used for injection purposes. It is free from most of the corrosion and explosive disadvantages of air, but its effect on the viscosity is about the same.

As already said, the injection of gases into depleted sands is in many fields an effective method of increasing production, but it can not compare in effectiveness with the efficient utilization of the original gas.

The Efficient Utilization of Gas in Oil Production.

The purpose of the efficient utilization of gas in oil production is to produce the most oil at the least cost in the most orderly manner. The most efficient method is the one making the greatest effective use of the energy and solution values of the gas. It is the method that will produce the greatest amount of oil with the minimum expenditure of gas energy. The cubic feet of gas produced with each barrel of oil, known as the gas-oil ratio, is a working index, but not an infallible index, of the efficiency of any method; in general, the lower the ratio the greater the efficiency.

No one method can be prescribed; the method most effective with one well may fail with another. The variations in thickness and porosity of reservoir sands, in character of gas and oil, in hydrostatic head, in gas pressure,

and many other factors necessitate the study of each field and even of each individual well. This is the province of the production engineer. The methods herein briefly discussed are those that have given favorable results in various places and under various conditions.

Methods During Development.

Careful study should be given to the spacing of wells. Too wide spacing gives the gas too great a distance to propel the oil, and results in inadequate drainage and lower recovery of oil per acre. It is obvious, of course, that too close spacing gives an excessive development cost per acre.

The timing of wells should also be given consideration. The ideal method of utilizing gas energy to the fullest extent would be to drill all the wells necessary to drain a structure, cap each well brought in until the boundaries of the field are determined, and then put all wells on production at the same time. This is possible, of course, only when an entire structure is handled under a single development and production program.

Careful thought should also be given other drilling problems, such as the depth to which the reservoir should be penetrated; the complete cleaning of mud from the face of the sand, the placing of shots so as to avoid the shattering of impervious beds above or below the reservoir; and the setting of casing to separate all oil, gas, and water-bearing strata and, when gas is present in the same reservoir rock above the oil, to confine it so that its energy is directed downward to and through the oil rather than laterally to the well.

Pressure Control.

The retention of fluidity and energy and the production of the greatest volume of oil with the smallest reduction in rock pressure are both accomplished by the proper adjustment of the amount of pressure held on the sand. This is done by regulating the flow stream from the well in such a way as to regulate the fluid pressure on the exposed face of the reservoir in the well.

The methods which have been found effective in various fields are the tubing of wells, as early in their life as conditions allow, instead of permitting them to flow through the casing; the use of flow beans, the regulation of lengths and sizes of flow lines; the regulation of trap pressures; stop-cocking, or alternately closing and opening a well to maintain an intermittent flow; and the use of the air-gas lift, which alters the fluid pressure on the face of the reservoir formation and simultaneously alters the fluidity, specific gravity, and energy in the fluid column in the well so that more efficient flow may be maintained. Each of these methods has been found valuable in various places and under various conditions, but no one of them is valuable under all conditions. As has already been emphasized, each fluid, each lease, and each well must be given individual study.

Wells which have too high a gas-oil ratio and refuse to respond to treatment should, whenever possible, be shut in to conserve the gas pressure. In certain cases this has been found to increase the production of nearby wells by more than the amount of the former production of the shut-in wells, and the ultimate yield of the area should be considerably benefited. This is also, of course, a

practice to be adopted only under unit or cooperative operation of the field.

In this class fall fields which have an area of free gas on top of the structure. The dissipation of this free gas not only deprives the field of a great energy value available to produce the oil but draws the oil into the free gas area and disseminates it through previously dry sand from which much of it may never be recovered. The shuting in of the gas wells confines the oil to its original boundaries, permits the utilization of the energy and solution values of the gas, and defers the day of water encroachment.

Injection of Gases.

The general effects of injecting gas, air, or flue gas into a wholly or partially depleted reservoir have already been discussed. The three methods generally considered are pressure maintenance, repressuring, and gas drive. In practice the three are not always distinguishable.

In repressuring gas is introduced into the sand under pressure through certain wells while all other wells are shut in. The method has certain theoretical advantages and certain economic disadvantages, and has not been adequately tested.

In pressure maintenance and the gas, drive, gas—natural gas, air, or flue gas—is introduced into the sand through "key" or "input" wells, and oil and gas are produced from surrounding wells. The injection of gas should be started as early in the life of the field as production conditions will permit, and the gas injection and the maintenance of back pressure on the other wells should

be so regulated as to maintain the original gas pressure as nearly as possible.

In certain Texas and Louisiana fields gas drive is estimated to have increased the ultimate recovery thirty-five to sixty per cent, with decided increases in current production.

Gas Conservation and Unit Operation.

Most of the methods discussed above can not be effectively applied in fields in which the leases are in diverse ownership and competitive operating conditions prevail. The effectiveness of most of them depends on simultaneous application to the whole of a productive area. Proper well spacing, proper well timing, pressure control, pressure restoration, gas drive—only in rare cases can these methods be adopted by the competitive operator in a field. Unless a field is operated as a unit, whether by cooperation or control, there is little chance of holding down the gas-oil ratio, utilizing the energy and solution values of the gas, making the gas do the maximum work in the production of oil, or producing the greatest total amount of oil at the smallest cost.

EARL OLIVER,
Chairman.

G. C. GESTER,
Pacific Coast Region.

W. P. HASEMAN,
Kansas-Oklahoma Region.

FRED E. WOOD,
Rocky Mountain Region.

JOHN R. SUMAN,
Texas-Louisiana Region.

MAX W. BALL,
Secretary.

Chicago, Ill., December 2, 1927.

APPENDIX F

The New International Year Book, 1929.

SUMMARY OF NATURAL GAS STATISTICS, 1928

	Production				Consumption						
					Domestic		Industrial				
	Quantity (Millions of cubic feet)	Estimated average value at wells per M cu. ft. (cents)	Average value at points of consumption per M cu. ft. (cents)	Thousands of consumers	Consumption (Millions of cubic feet)	Average value at points of consumption per M cu. ft. (cents)	Field drilling, pumping, operating gasoline plants, etc. Millions of cubic feet.	Field drilling, pumping, operating gasoline plants, etc. Value at points of consumption (Thousands of dollars)	For fuel at petroleum refineries (Millions of cubic feet)	In manufacture of carbon black Millions of cubic feet (Estimated)	In manufacture of carbon black Value at points of consumption (Thousands of dollars)
Arkansas	20,235	6.4	17.6	62	6,785	48.4	13,728	$ 1,086	3,737	.....	$....
California	246,215	8.8	23.0	769	37,702	87.5	149,307	13,273	17,403	.....	....
Colorado	2,931	10.0	26.8	69	629	110.8	1,180	118	(b)	.....	....
Illinois	3,051	10.0	11.8	12	52	88.5	2,931	295	.....	.....	....
Indiana	1,290	34.7	49.5	16	791	61.9	85	9	.....	.....	....
Kansas	45,644	6.7	31.0	160	12,008	65.6	14,782	1,380	7,171	.....	....
Kentucky	15,383	10.9	34.8	141	10,753	45.3	968	112	.....	218	22
Louisiana	227,821	3.3	8.9	126	6,127	45.3	26,004	1,211	22,034	104,670	2,473
Michigan	469	8.5	31.8	10	60	150.0	99	9	.....	.....	....
Missouri	360	8.6	60.3	99	6,129	82.8	8	1	.....	.....	....
Montana	6,039	4.2	21.0	13	2,346	43.1	1,116	106	(b)	1,760	35
New Mexico	838	5.1	7.9	1	47	48.9	772	39	(b)	.....	....
New York	7,224	32.3	66.8	242	16,391	68.5	716	238	.....	.....	....
Ohio	56,341	18.0	57.0	1,192	88,511	62.7	3,850	1,406	.....	.....	....
Oklahoma	320,861	6.5	14.8	216	23,185	50.9	205,159	19,474	16,184	.....	....
Pennsylvania	99,466	29.3	48.7	615	52,971	61.2	6,606	2,229	1,173	.....	....
South Dakota	214	8.9	99.1	2	214	99.1	.....	.....	.....	.....	....
Texas	301,990	3.4	17.0	420	27,284	67.1	106,034	12,749	29,641	62,749	1,576
Utah	1,105	2.0	2.0	....	.....	...	.....	.....	.....	(c)	(c)
West Virginia	163,018	17.6	44.3	172	25,407	33.0	16,876	3,767	1,519	494	69
Wyoming	47,490	3.5	7.4	13	2,729	39.2	22,473	853	15,706	5,246	146
Other	154	8.4	29.9	16	756	81.0	4	1	382	.....	....
Total, 1928	1,568,139	8.9	23.2	4,366	320,877	62.0	573,698	58,356	114,950	175,137	4,321
Total, 1927	1,445,428	8.8	22.0	3,984	296,036	60.8	549,455	38,912	123,395	144,087	4,064

[a] Includes value of natural gas used at refineries. [b] Included under "Other." [c] Included with Wyoming.

APPENDIX F

The New International Year Book, 1929.

SUMMARY OF NATURAL GAS STATISTICS, 1928

Production		Consumption									
		Domestic		Industrial							
							In manufacture of carbon black		Other industrial		
Estimated average value at wells per M cu. ft. (cents)	Average value at points of consumption per M cu. ft. (cents)	Thousands of consumers	Consumption (Millions of cubic feet)	Average value at points of consumption per M cu. ft. (cents)	Field drilling, pumping, operating gasoline plants, etc. Millions of cubic feet.	Field drilling, pumping, operating gasoline plants, etc. Value at points of consumption (Thousands of dollars)	For fuel at petroleum refineries (Millions of cubic feet)	Millions of cubic feet (Estimated)	Value at points of consumption (Thousands of dollars)	Millions of cubic feet	Value at points of consumption (Thousands of dollars) [a]
6.4	17.6	62	6,785	48.4	13,728	$ 1,086	3,737	.....	$....	13,513	$ 2,280
8.8	23.0	769	37,702	87.5	149,307	13,273	17,403	.....	....	41,803	10,435
10.0	26.8	69	629	110.8	1,180	118	(b)	.....	....	4,507	1,032
10.0	11.8	12	52	88.5	2,931	295	.....	.....	....	68	19
34.7	49.5	16	791	61.9	85	9	.....	.....	....	1,383	702
6.7	31.0	160	12,008	65.6	14,782	1,380	7,171	.....	....	38,710	7,755
10.9	34.8	141	10,753	45.3	968	112	.....	218	22	3,863	1,460
3.3	8.9	126	6,127	45.3	26,004	1,211	22,034	104,670	2,473	29,920	6,675
8.5	31.8	10	60	150.0	99	9	.....	.....	....	310	50
8.6	60.3	99	6,129	82.8	8	1	.....	.....	....	3,629	827
4.2	21.0	13	2,346	43.1	1,116	106	(b)	1,760	35	1,692	373
5.1	7.9	1	47	48.9	772	39	(b)	.....	....	35	5
32.3	66.8	242	16,391	68.5	716	238	.....	.....	....	811	508
18.0	57.0	1,192	88,511	62.7	3,850	1,406	.....	.....	....	30,123	13,349
6.5	14.8	216	23,185	50.9	205,159	19,474	16,184	.....	....	40,805	7,560
29.3	48.7	615	52,971	61.2	6,606	2,229	1,173	.....	....	55,400	19,750
8.9	99.1	2	214	99.1	.....	.....	.....	.....	....	.....	.....
3.4	17.0	420	27,284	67.1	106,034	12,749	29,641	62,749	1,576	93,010	21,640
2.0	2.0	....	.....	...	.....	.....	.....	(c)	(c)	(c)	(c)
17.6	44.3	172	25,407	33.0	16,876	3,767	1,519	494	69	21,976	6,401
3.5	7.4	13	2,729	39.2	22,473	853	15,706	5,246	146	1,500	1,242
8.4	29.9	16	756	81.0	4	1	382	.....	....	259	83
8.9	23.2	4,366	320,877	62.0	573,698	58,356	114,950	175,137	4,321	383,317	102,146
8.8	22.0	3,984	296,036	60.8	549,455	38,912	123,395	144,087	4,064	332,271	94,809

GAS 320 GAS

used at refineries. [b] Included under "Other." [c] Included with Wyoming.

Appendix G

Quotation from article entitled "Gas, Natural," Americana, Volume 12, p. 302, et seq., edition 1927:

"*Gas, Natural.* By recognized usage the term 'natural gas' has been restricted to the inflammable gases issuing from oil and gas reservoirs in the earth's crust—leaving the equally natural supplies of carbonic acid gas and of nitrogen to be given a more specific title. In composition, various samples of natural gas differ very considerably, but its principal component is methane, or marsh gas (CH_4), ranging from 81 per cent for Pennsylvania and West Virginia gas to 98 per cent in some of the gas produced in Oklahoma. * * *

"Natural gas is regarded as a form of bitumen, closely related to petroleum, maltha and asphalt. It may be mentioned in passing that the asphalt which is continually rising on the lake at Trinidad is aerated by large bubbles of natural gas. Opinion is divided as to the origin of natural gas, but the majority holds that it is the product of mineral and vegetable matter slowly decaying at a low temperature. As it is found only in sedimentary rocks, the theory prevails that it is the product of carbonaceous matter deposited with those strata, although it is quite as likely to have been formed elsewhere, finding its way into those rocks because of their porous structure. Gas, because of its natural qualities, has a tendency to make its way for long distances wherever there are hollows in which the pressure is less than its own, and only collects in considerable quantities where there is an impermeable stratum of clay or rock to prevent further movement. In these hollows it accumulates under varying pressures,

depending upon their depth below the surface, the pressure having a close relation to the weight per square inch of a column of water of the same height; from which it is argued that the pressure found in natural gas reservoirs is derived from water forcing the gas out of a lower level. Among high pressures reported have been 1,700 pounds per square inch in Green County, Pa., and 1,260 pounds more recently at Midway, Cal. * * *

"*Calorific Value.* The calorific or fuel value of natural gas varies in different localities, as the amounts of carbon and hydrogen vary. Those natural gases which contain the highest percentage of carbon give the best results. The standard used in measuring fuel values is called the British thermal unit, written B. T. U., and is the amount of heat necessary to raise the temperature of one pound of pure water 1° F. at or near 39° F., which is the temperature of the maximum density of water. As tested by this standard various samples of natural gas showed heat values ranging from 740 to 1,312 B. T. U. per cubic foot. The quantity of air necessary for the perfect combustion of natural gas varies from 10.4 to 10.8 parts of air to 1 part of natural gas. A number of tests have fully demonstrated that when ordinary care is taken in burning natural gas under boilers in actual service, 1 cubic foot of natural gas will do work equivalent to the evaporation of 1 pound of water from and at 212° F. Since 20 cubic feet of ordinary natural gas weigh 1 pound, 1 pound of natural gas will evaporate 20 pounds of water, while, under similar conditions, 1 pound of petroleum will evaporate only 16 pounds of water, and 1 pound of good coal will evaporate but 10 pounds of water; therefore 10 cubic feet of natural gas or one-half

a pound is equal to one pound of good coal. In fact, in a number of tests with a Klein or a Kirkwood burner, .87 cubic foot of natural gas has evaporated 1 pound of water from and at 212° F., which will make 17,400 cubic feet equal to one ton of good coal. The actual heating effect of natural gas as a fuel approaches much nearer the theoretical result than can be attained with coal. The price paid by the domestic consumer for natural gas varies in localities, averaging about 32 cents per 1,000 cubic feet. The consumers near the supply pay less than those farther off. Manufacturers pay less, averaging about 20 cents per 1,000 cubic feet. About 20,000 cubic feet of natural gas will equal one ton of good bituminous or anthracite coal. If we assume the average price to the domestic consumer to be 32 cents per 1,000, then $6.40 worth of gas will produce the same heating effect as one ton of good coal delivered in the bins—to which must be added the expense of shoveling it into the furnace and the removal of the ashes, as well as the inconvenience of the necessary dust and dirt which invariably accompanies a coal fire.

"The Natural Gas Engine. Natural gas, as applied to the internal combustion engine, has caused a complete revolution in the methods of securing power throughout the gas belt. It has in nearly all instances superseded any other source of power in pumping petroleum wells. In some instances this has been done by substituting a gas cylinder for the steam cylinder, using the same engine bed. The economy in the use of natural gas and the dispensing with the costly and troublesome boiler, with its constant attendant, has brought it into great favor for

all sources of power, from a 1 horse-power up to 4,500 horse-power engine.

"The following table gives the equivalent of natural gas and coal for both the gas and steam engine per indicated horse power per hour:

Type of Engine	Gas	Coal
	Cubic Feet	Pounds
Large natural-gas engine, highest type	9	0.9
Ordinary natural-gas engine	13	1.3
Triple expansion condensing steam engine	16	1.6
Double expansion condensing steam engine	20	2.0
Single cylinder and cut-off steam engine	40	4.0
Ordinary high pressure, without cut-off, steam engine	80	8.0
Ordinary oil well pumping steam engine	130	13.0

"*Uses.* Natural gas is used in domestic service principally as a source of heat and light. It is employed extensively in industrial establishments for many purposes, notably in the generation of steam; in the manufacture of glass, puddling of iron; in roasting ores; in heating furnaces, for lacquering and japanning, annealing and reheating, case hardening, tool tempering, preheating castings in oxy-acetylene welding; and for heating china kilns, water stills, fire expanders, etc.; and in the manufacture of steel and pottery; it is also utilized as a source of power in the gas engine in oil field work, and as a general source of power for all purposes. To conserve the supply, manufactured gas is mixed with it. The heat value stored in natural gas is greater than that caused

by any artificial combination of carbon and hydrogen, and it is a perfect fuel as it issues from its original rock-sealed reservoirs. No preparation is necessary for its combustion, and no residue is left. It is not affected by ordinary temperature and it is easily distributed by pipes to points of consumption. It is a most economical source of light and power, and an idea household fuel. Carbon black (q. v.) is the only commercial article that is made directly from natural gas.

"Since 1911 a considerable industry has been built up in the production of gasoline from casing-head gas—that is the gas which comes up between the casing and the tubing of an oil well, and collects in the casing head. This gas is known as 'wet' gas, carrying a proportion of the vapor of petroleum. The process is also applied to gas from gas wells if it carries as much as six pints of gasoline vapor to the 1,000 cubic feet. For the wetter gases the principle of compression is employed, with subsequent condensation. For the dryer gases the process is to pass the gas through a tank of heavy oil which absorbs the gasoline vapor, and the gasoline is afterward distilled out. In 1923 there were in the United States 1,067 plants devoted to the production of gasoline from natural gas. The total recovery was 816,226,000 gallons, nearly a third of which was gained in Oklahoma. A yield as high as eight gallons of gasoline per 1,000 cubic feet is obtainable. In addition to the oil absorption method absorption by charcoal has been developed."

DEPARTMENT OF COMMERCE
William F. Whiting, Secretary

BUREAU OF MINES
Scott Turner, Director

NATURAL GAS

IN 1927

By G. R. HOPKINS and H. BACKUS

Mineral Resources of the United States, 1927—Part II
(Pages 129–137)

Published December 17, 1928

PRICE 5 CENTS
Sold only by the Superintendent of Documents, U. S. Government Printing Office
Washington, D. C.

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON
1928

II:14

NATURAL GAS

By G. R. Hopkins and H. Backus

The history of the natural-gas industry in 1927 was similar to that of the petroleum industry in that a record output was marketed at reduced prices. The total quantity of natural gas produced in the United States and delivered to consumers in 1927 amounted to the huge total of 1,445,428,000,000 cubic feet, an increase over 1926 of 132,409,000,000 cubic feet, or 10 per cent; this increase compares with increases of 10 and 4 per cent in 1926 and 1925, respectively, over the preceding year. During 1927, 184,000,000 cubic feet of gas produced in the United States was piped to Canada and Mexico, and 1,445,244,000,000 cubic feet was consumed within the United States. The value of the gas per thousand cubic feet at the wells decreased from 9.5 cents in 1926 to 8.8 cents in 1927 and at points of consumption from 22.9 cents in 1926 to 22.0 cents in 1927. In spite of the material increase in quantity of gas utilized in 1927, the total value at wells and at points of consumption showed but slight increases over 1926.

In 1927 domestic (household) consumers—3,984,000—of natural gas in the United States used a total of 296,036,000,000 cubic feet. These figures represent an increase of nearly 254,000, or 7 per cent, in the number of domestic consumers, but an increase of only 2 per cent in the total domestic consumption. The average consumption in 1927 per domestic consumer, 74,300 cubic feet, as compared with 77,500 cubic feet in 1926, was lower for the fourth consecutive year; this decrease in average consumption was probably the result of more efficient use. The average price paid for natural gas by domestic consumers in 1927 was 60.8 cents per thousand cubic feet, as compared with 58.4 cents in 1926. As an illustration of the steady increase in the price paid by domestic consumers for gas, it may be cited that the 1927 price was almost twice the 1917 price, and that the last annual decrease in average price was in 1908. On the basis of the consumption and price data given, the natural-gas bill of the average domestic consumer in 1927 was $3.76 per month, or $45.17 for the year. Ohio continued to lead the States in number of domestic consumers and was again followed by California and Pennsylvania. California recorded the largest increase in number of domestic consumers in 1927 as well as the largest increase in average value. This unusual relation would seem to indicate that the price of natural gas for household use is a minor factor from the point of view of the consumer. Only three States—Indiana, Missouri, and Tennessee—reported a decrease in 1927 in number of domestic consumers.

The relative rank of the large natural-gas producing States was materially changed in 1927. Oklahoma retained first place, Texas advanced from fourth to second place, and Louisiana from fifth to

fourth. California dropped from second to third place and displaced West Virginia which dropped to fifth place. The output in Oklahoma increased 14 per cent in 1927, chiefly as the result of production incidental to the intensive drilling for oil at Seminole. Texas showed the largest increase in output—45 per cent—of all the major gas-producing States; as in Oklahoma, this increase was due to oil development, particularly that in the Panhandle.

The total consumption of natural gas (including residue gas from natural gasoline plants) by industrial users in 1927 amounted to 1,149,208,000,000 cubic feet, an increase over 1926 of 12 per cent; this total was divided about equally between field use (that is, for drilling, pumping, and operating gasoline recovery plants) and other industrial uses (including gas burned in making carbon black and gas used by manufacturing establishments). Virtually all of the increase in consumption of gas for field purposes was in Oklahoma and Texas and was the result of an intensive drilling campaign in those States. The major part of the increase in consumption of gas for other industrial purposes was in Louisiana, where refiners were using it as fuel more extensively than in previous years, and in Texas where carbon black manufacturers in the Panhandle district and industrial plants in the Texas Gulf coast district were using it in increasing quantities. The total value of the gas consumed for field and other industrial purposes in 1927 amounted to $137,785,000, as compared with $131,185,000 in 1926. The average value per thousand cubic feet for industrial gas dropped from 12.8 cents in 1926 to 12 cents in 1927; this fact accounts for the small increase in total value in the face of a 12 per cent gain in consumption. In general, the price of gas for industrial purposes has shown little change in the past 10 years, whereas, as previously noted, the price of gas for domestic consumption has increased steadily. This condition is due mainly to the fact that the fields near the centers of population have declined in output and the only prolific gas fields found in the past several years are in comparatively isolated localities.

Despite the low prices that prevailed for natural gasoline in 1927, the tendency to extract the greatest possible amount from the gas was again marked. A total of 1,341,248,000,000 cubic feet of natural gas, or 93 per cent of the total production, was treated for the recovery of natural gasoline in 1927. In 1926 the proportion treated was 92 per cent.

The interstate movement of natural gas in 1927 amounted to 194,401,000,000 cubic feet, a decrease of 7 per cent from 1926. The movement of gas from West Virginia continued to be of first importance despite a decrease of 13 per cent from 1926; this decrease was probably due to both declining production in West Virginia and slow but steady increase in the output of Ohio.

Summary of statistics for natural gas in the United States, 1923–1927

	1923	1924	1925	1926	1927
Natural gas consumed:					
Domestic.....millions of cubic feet..	277,050	285,152	272,146	289,175	296,036
Industrial—					
Carbon black.....do....	109,096	156,514	140,366	130,321	144,087
Field.....do....	343,076	393,437	423,524	478,188	549,455
Other industrial.....do....	277,745	306,379	352,403	415,169	455,666
	1,006,967	1,141,482	1,188,439	1,312,853	1,445,244
Domestic.....per cent..	27.5	25	23	22	20
Industrial.....do....	72.5	75	77	78	80
Used for natural gasoline:					
Millions of cubic feet.....	875,711	1,016,276	1,040,390	1,206,300	1,341,248
Per cent of total consumption.....	87.0	89	88	92	93
Domestic consumers.....thousands..	3,234	3,443	3,508	3,731	3,964
Value of natural gas at wells:					
Total.....thousands of dollars..	100,849	105,779	112,047	124,693	127,468
Average per M cubic feet.....cents..	10.0	9.3	9.4	9.5	8.8
Value of natural gas at points of consumption:					
Total.....thousands of dollars..	239,993	253,830	265,184	[1] 300,055	317,803
Domestic.....do....	142,317	154,075	152,494	[1] 168,870	180,018
Industrial.....do....	97,678	99,755	112,690	131,185	137,785
Average per M cubic feet—					
Domestic.....cents..	51.4	54.0	56.0	58.4	60.8
Industrial.....do....	13.4	11.6	12.3	12.8	12.0
Domestic and industrial.....do....	23.8	22.2	22.3	22.9	22.0
Natural gasoline:					
Quantity.....thousands of gallons..	816,226	933,881	1,127,470	1,363,090	1,641,144
Value at plants—					
Total.....thousands of dollars..	77,268	82,233	120,383	136,412	118,688
Average per gallon.....cents..	9.5	8.8	10.7	10.0	7.2
Carbon black:					
Quantity.....thousands of pounds..	138,263	186,872	177,417	180,576	198,429
Value at plants—					
Total.....thousands of dollars..	11,692	11,565	9,640	9,939	10,965
Average per pound.....cents..	8.5	6.2	5.4	5.5	5.5

[1] Revised figures.

Natural gas produced and consumed in the United States, 1926–27.

State	Produced and delivered to consumers, including deliveries in other States						Consumed, including receipts from other States			
	Quantity		Estimated value at the wells		Value at points of consumption		Quantity		Value at points of consumption	
	M cubic feet	Per cent of total	Total	Average per M cubic feet (cents)	Total	Average per M cubic feet (cents)	M cubic feet	Per cent of total	Total	Average per M cubic feet (cents)
1926										
Ark.	43,566,000	3.3	$2,000,000	4.6	$5,817,000	13.4	52,630,000	4.0	$7,027,000	13.4
Calif.	204,915,000	15.6	16,803,000	8.2	[1] 36,425,000	17.8	204,915,000	15.6	[1] 36,425,000	17.8
Colo.	553,800	(2)	50,000	9.0	130,000	23.5	503,800	(2)	125,000	24.8
Ill.	3,808,000	.2	762,000	20.0	863,000	22.7	3,808,000	.3	863,000	22.7
Ind.	901,000	.1	377,000	41.8	379,000	42.1	1,854,000	.1	906,000	48.9
Kans.	38,095,000	2.9	2,884,000	7.6	12,547,700	32.9	61,142,000	4.7	14,381,000	23.5
Ky.	10,410,000	.8	961,000	9.2	3,378,000	32.4	18,126,000	1.4	6,119,000	33.8
La.	157,423,000	12.0	4,864,000	3.1	8,738,000	5.6	148,886,000	11.3	6,912,000	4.6
Mich.	400	(2)	40	10.0	200	50.0	400	(2)	200	50.0
Mo.	1,000	(2)	100	10.0	700	70.0	5,819,000	.4	4,997,400	85.9
Mont.	2,283,000	.2	86,000	3.8	450,000	19.7	3,295,000	.2	650,000	19.7
N. Mex.	921,000	.1	72,000	7.8	75,000	8.1	921,000	.1	75,000	8.1
N. Y.	[3] 7,027,000	.5	2,237,000	31.8	4,499,000	64.0	17,864,000	1.4	11,443,000	64.1
Ohio.	47,363,000	3.6	8,781,000	18.5	25,403,000	53.6	115,719,000	8.8	65,982,000	57.0
Okla.	286,421,000	21.8	22,828,000	8.0	42,140,000	14.7	244,993,000	18.7	33,251,000	13.6
Pa.	107,089,000	8.2	25,112,000	23.4	50,040,000	46.7	125,836,000	9.6	56,724,000	45.1
S. Dak.	10,100	(2)	1,010	10.0	14,000	138.6	10,100	(2)	14,000	138.6
Tenn.	11,500	(2)	1,150	10.0	1,900	16.5	11,500	(2)	1,900	16.5
Tex.	[4] 175,392,000	13.4	10,085,000	5.7	28,165,000	16.1	187,341,000	14.3	30,807,000	16.4
W. Va.	180,223,000	13.7	24,582,000	13.6	76,396,000	42.4	72,784,000	5.5	18,337,000	25.2
Wyo.	46,567,000	3.6	2,203,000	4.7	4,669,000	10.0	48,606,000	3.6	4,474,000	4.6
Other [5]	38,200	(2)	3,700	9.7	6,500	17.0	789,200	.1	540,500	68.5
	1,313,019,000	100.0	124,693,000	9.5	[1] 300,168,000	22.9	1,312,853,000	100.0	[1] 300,055,000	22.9
1927										
Ark.	30,450,000	2.1	1,486,000	4.9	4,281,000	14.1	40,916,000	2.8	5,751,000	14.1
Calif.	212,364,000	14.7	19,431,000	9.1	50,946,000	24.0	212,364,000	14.7	50,946,000	24.0
Colo.	1,725,400	.1	173,000	10.0	290,000	16.8	1,544,000	.1	277,000	17.9
Ill.	3,741,000	.3	678,000	18.1	764,000	20.4	3,741,000	.3	764,000	20.4
Ind.	1,124,000	.1	406,000	36.1	509,000	45.3	2,166,000	.1	1,076,000	49.7
Kans.	42,646,000	3.0	3,263,000	7.7	12,833,000	30.1	66,618,000	4.6	13,998,000	21.0
Ky.	10,206,000	.7	946,000	9.3	3,277,000	32.1	16,694,000	1.2	5,608,000	33.6
La.	186,961,000	12.9	5,609,000	3.0	12,158,000	6.5	170,310,000	11.8	9,340,000	5.5
Mich.	600	(2)	50	8.3	300	50.0	600	(2)	300	50.0
Mo.	300	(2)	30	10.0	200	66.7	6,584,300	.5	5,265,000	80.0
Mont.	4,253,100	.3	131,800	3.1	716,400	16.8	5,455,000	.4	918,000	16.8
N. Mex.	1,019,000	.1	45,000	4.4	48,500	4.8	1,019,000	.1	48,500	4.8
N. Y.	[6] 5,908,000	.4	1,731,000	29.3	3,841,000	65.0	16,174,500	1.1	10,514,000	65.0
N. Dak.	200	(2)	20	10.0	100	50.0	2,300	(2)	1,300	56.5
Ohio.	51,381,000	3.5	8,632,000	16.8	28,881,000	56.2	112,603,000	7.8	64,238,000	57.0
Okla.	326,864,000	22.6	21,508,000	6.6	41,391,000	12.7	286,485,000	19.8	33,503,000	11.7
Pa.	105,709,500	7.3	26,502,000	25.1	49,135,000	46.5	121,982,000	8.4	54,473,000	44.7
S. Dak.	92,000	(2)	8,130	8.8	136,500	148.4	92,000	(2)	136,500	148.4
Tenn.	9,000	(2)	800	8.9	2,200	24.4	9,000	(2)	2,200	24.4
Tex.	[7] 254,063,000	17.6	11,204,000	4.4	37,424,800	14.7	269,944,000	18.7	40,141,000	14.9
W. Va.	162,375,000	11.2	23,918,000	14.7	67,994,000	41.9	66,200,000	4.6	17,062,000	25.8
Wyo.	43,581,600	3.0	1,765,000	4.0	3,269,800	7.5	42,559,000	2.9	3,080,000	7.2
Other [5]	954,300	.1	30,170	3.2	31,200	3.3	1,781,300	.1	632,200	35.5
	1,445,428,000	100.0	127,468,000	8.8	317,930,000	22.0	1,445,244,000	100.0	317,803,000	22.0

[1] Revised figures.
[2] Less than 0.1 per cent.
[3] Includes 79,000 M cubic feet consumed in Canada.
[4] Includes 87,000 M cubic feet consumed in Mexico.
[5] 1926: Alaska, Maryland (consumption only), and North Dakota; 1927: Alaska, Maryland (consumption only), Mississippi, and Utah.
[6] Includes 71,000 M cubic feet consumed in Canada.
[7] Includes 113,000 M cubic feet consumed in Mexico.

State	Domestic				Industrial							
					Field (drilling, pumping, and operating gasoline recovery plants)		Other industrial, including use in manufacture of carbon black			Total industrial		
	Number of consumers	M cubic feet	Value at points of consumption		M cubic feet (estimated)	Value at points of consumption (estimated)	M cubic feet	Value at points of consumption		M cubic feet	Value at points of consumption	
			Total	Average (cents)				Total	Average (cents)		Total	Average (cents)
1926												
Arkansas	52,210	7,834,000	$3,532,000	45.1	35,195,000	$1,615,000	9,611,000	$1,880,000	19.6	44,806,000	$3,495,000	7.8
California	632,600	20,960,000	[1] 15,731,000	75.1	123,953,000	10,177,000	60,002,000	10,517,000	17.5	183,955,000	20,694,000	11.2
Colorado	1,974	78,800	68,000	86.3	378,000	34,000	47,000	23,000	48.9	425,000	57,000	13.4
Illinois	11,910	203,000	142,000	70.0	3,605,000	721,000				3,605,000	721,000	20.0
Indiana	13,860	722,000	386,000	53.5	72,000	30,000	1,060,000	490,000	46.2	1,132,000	520,000	45.9
Kansas	142,730	10,133,000	6,905,000	68.1	11,536,000	873,000	39,473,000	6,603,000	16.7	51,009,000	7,476,000	14.7
Kentucky	137,500	12,404,000	5,258,000	42.4	874,000	81,000	4,848,000	780,000	16.1	5,722,000	861,000	15.0
Louisiana	35,710	4,413,000	1,669,000	37.8	25,763,000	796,000	118,710,000	4,447,000	3.7	144,473,000	5,243,000	3.6
Michigan	6	400	200	50.0								
Missouri	100,300	5,288,000	4,843,400	91.6			531,000	154,000	29.0	531,000	154,000	29.0
Montana	6,345	1,383,000	589,000	42.6	290,000	11,000	1,622,000	50,000	3.1	1,912,000	61,000	3.2
New Mexico	140	28,000	5,000	17.9	893,000	70,000				893,000	70,000	7.8
New York	235,290	16,909,000	11,004,000	65.1	491,000	157,000	464,000	282,000	60.8	955,000	439,000	46.0
Ohio	1,124,080	87,672,000	53,970,000	61.6	3,130,000	580,000	24,917,000	11,432,000	45.9	28,047,000	12,012,000	42.8
Oklahoma	166,660	17,617,000	8,840,000	50.2	159,269,000	12,694,000	68,107,000	11,717,000	17.2	227,376,000	24,411,000	10.7
Pennsylvania	509,900	56,148,000	33,912,000	60.4	7,988,000	1,873,000	61,700,000	20,939,000	33.9	69,688,000	22,812,000	32.7
South Dakota	375	10,100	14,000	138.6								
Tennessee	80	5,500	1,300	23.6	6,000	600				6,000	600	10.0
Texas	279,380	18,045,000	11,986,000	66.4	69,369,000	3,996,000	99,927,000	14,825,000	14.8	169,296,000	18,821,000	11.1
West Virginia	165,800	25,700,000	8,166,000	31.8	14,225,000	1,940,000	32,859,000	8,231,000	25.0	47,084,000	10,171,000	21.6
Wyoming	11,280	2,880,000	1,314,000	45.6	21,136,000	1,000,000	21,589,000	2,160,000	10.0	42,725,000	3,160,000	7.4
Other [2]	12,670	751,200	534,100	71.1	15,000	1,400	23,000	5,000	21.7	38,000	6,400	16.8
	3,730,800	289,175,000	[1] 168,870,000	58.4	478,188,000	36,650,000	545,490,000	94,535,000	17.3	1,023,678,000	131,185,000	12.8

[1] Revised figures.

[2] Alaska, Maryland, and North Dakota.

Natural gas consumed in the United States, 1926–27—Continued

State	Domestic				Industrial							
					Field (drilling, pumping, and operating gasoline recovery plants)		Other industrial, including use in manufacture of carbon black			Total industrial		
	Number of consumers	M cubic feet	Value at points of consumption		M cubic feet (estimated)	Value at points of consumption (estimated)	M cubic feet	Value at points of consumption		M cubic feet	Value at points of consumption	
			Total	Average (cents)				Total	Average (cents)		Total	Average (cents)
1927												
Arkansas	57,190	6,419,000	$2,900,000	45.2	20,576,000	$1,019,000	13,621,000	$1,382,000	13.4	34,497,000	$2,851,000	8.3
California	745,440	34,309,000	30,125,000	88.3	121,393,000	11,107,000	55,362,000	9,714,000	17.6	177,055,000	20,821,000	11.8
Colorado	2,000	179,000	105,000	58.7	1,333,000	130,000	163,000	32,000	32.1	1,365,000	172,000	12.6
Illinois	12,150	164,000	116,000	70.7	3,577,000	648,000				3,577,000	648,000	18.1
Indiana	13,530	738,000	415,000	53.1	97,000	35,000	1,288,000	626,000	48.6	1,385,000	661,000	47.7
Kansas	145,990	10,435,000	6,868,000	66.1	15,811,000	1,210,000	40,372,000	5,895,000	14.6	56,183,000	7,105,000	12.6
Kentucky	141,880	11,445,000	4,917,000	43.0	861,000	80,000	4,383,000	611,000	13.9	5,244,000	691,000	13.2
Louisiana	40,490	4,071,000	1,482,000	36.4	27,672,000	830,000	138,567,000	7,028,000	5.1	166,239,000	7,858,000	4.7
Michigan	10	600	300	50.0								
Missouri	99,870	5,389,300	4,841,000	90.3			1,225,000	424,000	34.6	1,225,000	424,000	34.6
Montana	7,760	1,775,000	762,000	43.0	1,203,000	37,000	2,477,000	118,000	4.8	3,680,000	155,000	4.2
New Mexico	140	21,000	4,500	21.4	998,000	44,000				998,000	44,000	4.4
New York	236,890	15,068,000	10,087,000	67.1	464,500	14,000	674,000	413,000	61.3	1,138,500	427,000	37.5
North Dakota	30	2,300	1,300	56.5								
Ohio	1,149,760	83,686,000	52,055,000	62.2	3,679,000	618,000	25,270,000	11,602,000	45.9	28,949,000	12,220,000	42.2
Oklahoma	193,680	22,288,000	10,532,000	47.2	204,006,000	13,434,000	66,181,000	9,547,000	15.9	264,187,000	22,971,000	8.7
Pennsylvania	610,720	51,784,000	31,389,000	60.6	7,990,000	2,008,000	62,198,000	21,681,000	33.9	70,188,000	23,684,000	32.9
South Dakota	400	92,000	136,500	148.4								
Tennessee	70	9,000	2,200	24.4								
Texas	228,510	20,817,000	14,019,000	68.3	103,498,000	4,504,000	145,929,000	21,558,000	14.8	249,427,000	26,122,000	10.5
West Virginia	171,370	23,409,000	7,673,000	32.8	15,864,000	2,337,000	26,930,000	7,072,000	26.3	42,794,000	9,409,000	22.0
Wyoming	12,780	2,638,000	1,070,000	40.6	20,234,000	819,000	19,687,000	1,191,000	6.0	39,921,000	2,010,000	5.0
Other [1]	14,290	627,800	508,200	80.9	38,500	3,000	1,115,000	109,000	9.8	1,153,500	112,000	9.7
	3,964,400	296,036,000	180,018,000	60.8	549,455,000	38,912,000	599,753,000	98,873,000	16.5	1,149,208,000	137,785,000	12.0

[1] Alaska, Maryland, Mississippi, and Utah.

Interstate transportation of natural gas, in thousands of cubic feet, 1926–27

State in which gas was produced	State to which gas was transported	1926	1927
Colorado	Wyoming	50,000	181,400
Indiana	Kentucky	408,000	306,000
Kansas	Missouri	5,815,000	6,584,000
	Oklahoma	414,000	104,000
		6,232,000	6,688,000
Kentucky	West Virginia	1,595,000	1,955,000
Louisiana	Arkansas	8,053,000	10,215,000
	Mississippi		14,000
	Texas	6,419,000	10,884,000
		14,482,000	21,113,000
Montana	North Dakota		2,100
New York	Canada	79,000	71,000
	Pennsylvania	17,000	500
		96,000	71,500
Ohio	Indiana	1,361,000	1,348,000
	West Virginia	4,709,000	1,102,000
		6,070,000	2,450,000
Oklahoma	Arkansas	236,000	251,000
	Kansas	29,279,000	30,660,000
	Texas	12,327,000	9,572,000
		41,842,000	40,483,000
Pennsylvania	New York	10,933,000	10,236,000
	Ohio	1,429,000	1,698,000
	West Virginia	2,419,000	2,052,000
		14,781,000	14,088,000
Texas	Arkansas	765,000	
	Louisiana	5,945,000	4,462,000
	Mexico	87,000	113,000
		6,797,000	4,575,000
West Virginia	Kentucky	8,903,000	8,137,000
	Maryland	751,000	812,000
	Ohio	72,997,000	61,974,000
	Pennsylvania	33,511,000	30,360,000
		116,162,000	101,284,000
Wyoming	Montana	1,012,000	1,204,000
		209,527,000	194,401,000

Natural gas produced in the United States and delivered to consumers, 1918–1927, by States, in millions of cubic feet

Year	Arkansas	California	Illinois	Indiana	Kansas	Kentucky	Louisiana	Montana	New York	Ohio	Oklahoma	Pennsylvania	Texas	West Virginia	Wyoming	Others	Total	Value at points of consumption	
																		Total (thousands of dollars)	Average per M cubic feet (cents)
1918	5,295	39,719	4,473	1,667	27,825	3,022	36,094	177	8,461	61,261	124,317	123,813	13,440	265,161	4,339	1,937	721,001	153,554	21.3
1919	5,587	55,607	3,825	1,407	16,150	2,057	47,062	858	8,124	63,153	163,649	113,489	24,710	234,095	6,014	129	745,916	160,883	21.6
1920	9,027	66,041	3,013	1,779	21,158	3,345	58,274	818	8,419	58,938	154,467	125,787	37,063	239,719	10,312	50	798,210	196,194	24.6
1921	4,260	75,942	2,646	1,066	15,717	4,820	58,004	336	6,583	47,472	124,058	86,144	44,504	174,921	15,608	31	662,052	174,617	26.4
1922	9,700	84,580	3,383	947	20,289	5,872	70,267	486	6,947	51,481	140,631	101,276	47,945	195,288	23,427	27	762,546	221,535	29.1
1923	24,215	131,434	4,049	880	30,913	11,953	112,031	1,470	6,497	53,812	203,082	112,562	74,535	203,867	35,523	153	1,006,976	240,001	23.8
1924	36,616	189,692	4,072	998	25,580	12,875	160,945	1,071	6,196	47,396	214,452	105,863	107,247	182,285	46,036	197	1,141,521	253,856	22.2
1925	41,878	187,789	4,165	1,168	26,917	10,770	152,620	1,496	6,210	43,235	249,285	101,632	134,872	180,345	45,530	650	1,188,571	265,271	22.3
1926	43,566	204,915	3,808	901	38,095	10,410	157,423	2,283	7,027	47,363	286,421	107,089	175,392	180,223	46,567	1,536	1,313,019	[1]300,168	22.9
1927	30,450	212,364	3,741	1,124	42,646	10,206	186,961	4,253	5,908	51,381	326,864	105,709	254,063	162,375	43,582	3,801	1,445,428	317,930	22.0

[1] Revised figures.

Statistics of natural gas in the United States, 1918–1927

Year	Produced and delivered to consumers (billions of cubic feet)	Treated for recovery of natural gasoline		Domestic consumption					Industrial consumption					
		Billions of cubic feet	Per cent of total consumption	Number of consumers (thousands)	Billions of cubic feet	Average number of M cubic feet used per consumer	Per cent of total consumption	Average value at points of consumption per M cubic feet (cents)	Field (billions of cubic feet)	Carbon black (billions of cubic feet)	Other industrial (billions of cubic feet)	Total industrial (billions of cubic feet)	Per cent of total consumption	Average value at points of consumption per M cubic feet (cents)
1918	721	449	62	2,509	271	108.1	38	31.4	[1]	[1]	[1]	450	62	15.2
1919	746	480	64	2,501	256	102.2	34	34.6	170	50	270	490	66	14.8
1920	798	496	62	2,615	286	109.4	36	38.2	202	41	269	512	64	17.0
1921	662	465	70	2,631	248	94.4	38	44.4	182	51	181	414	62	15.5
1922	763	545	71	3,015	255	84.4	33	49.9	198	54	256	508	67	18.6
1923	1,007	876	87	3,234	277	85.7	28	51.4	343	109	278	730	72	13.4
1924	[2] 1,142	1,016	89	3,443	285	82.8	25	54.9	393	157	306	856	75	11.6
1925	[2] 1,189	1,040	88	3,508	272	77.6	23	56.0	424	140	352	916	77	12.3
1926	[2] 1,313	1,206	92	3,731	289	77.5	22	[3] 58.4	478	131	415	1,024	78	12.8
1927	[2] 1,445	1,341	93	3,984	296	74.3	20	60.8	549	144	456	1,149	80	12.0

[1] Figures not available.

[2] Includes gas piped to Canada and Mexico.

[3] Revised figures.

○

FILE COPY

MAY 11 1931

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1930.

No. [redacted] 43

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation; and Ambassador Petroleum Company, a corporation,

Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the judges thereof,

Appellees.

STATEMENT OF APPELLEES AS TO JURISDICTION ON APPEAL.

U. S. WEBB,
Attorney General of the State of California,
JAMES S. BENNETT,
Attorney for the Director of Natural Resources of the State of California,
Attorneys for Appellees.

Parker, Stone & Baird Co., Law Printers, Los Angeles.

TOPICAL INDEX.

PAGE

Statement 3

Nature of Case and Ruling Below..... 4

When the Federal Questions Pressed Have Been so Explicitly Decided by This Court as to Foreclose Further Argument on the Subject, This Court Will Not Take Jurisdiction. Such Is the Case Here..... 5

The Power of the State to Prohibit the Waste of Natural Gas Has Been Explicitly Decided by This Court..... 6

The Unreasonable Waste Prohibited by the California Statute as Construed by the Supreme Court of That State Is Sufficiently Certain to Meet All Tests of the Federal Constitution 8

Pleading and Record on Application for Writ of Prohibition.... 18

Conclusion 25

Opinion District Court of Appeal.....Appendix 1

TABLE OF CASES AND AUTHORITIES CITED.

PAGE

Bacon v. Walker, 204 U. S. 313..... 7

Bacon Service Corp. v. Huss, 199 Cal. 21..... 24

Bandini Pet. Co. v. Superior Court, 63 Cal. App. Dec. 1175.....5, 9

Bank of Cal. v. Roberts, 248 U. S. 497..... 19

Bevins v. State of Iowa, No. 574, Oct. Term, 1930..... 18

Board of Trade v. Olsen, 262 U. S. 1..... 24

Burr v. Maclay Rancho Water Co., 154 Cal. 428..... 11

Chap. 535, Stats. Cal. 1929, pp. 927-930..... 5

Cline v. Frink Dairy Co., 274 U. S. 445..... 13

Code Civil Proc., Sec. 462..... 19

Equitable Life Assurance Society v. Brown, 187 U. S. 308..... 5

Euclid v. Ambler Realty Co., 272 U. S. 395..... 25

Ex parte Alix, 166 U. S. 136..... 20

Federal Radio Commission v. General Electric Co., 280 U. S. 537 17

PAGE
Freese v. Hibernia Sav. Soc., 139 Cal. 392 15
Frohliger v. Richardson, 63 Cal. App. 209 20
Half Moon Bay Land Co. v. Cowell, 173 Cal. 543 11
In re Cooper, 143 U. S. 472 21
Irrigation Dist. v. Mt. Shasta Power Corp., 202 Cal. 56 11
Jacobsen v. Superior Court, 192 Cal. 319 21
Lever Act, Section 40 ..... 13, 14
Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61 ..... 12, 15
McFadden v. Lick Pier Co., 101 Cal. App. 17 23
Murphy v. Superior Court, 84 Cal. 592 19
Mt. Vernon-Woodberry etc. Co. v. Alabama I. P. Co., 240 U. S. 30 25
Ohio Oil Co. v. Indiana, 177 U. S. 190 7
Ohio River & W. R. Co. v. Dittey, 232 U. S. 576 23
Omaechevarria v. Idaho, 246 U. S. 348 17
People v. Associated Oil Co., Appx. B, p. 29, Supplement to Brief on Motion 7, 13
People v. Associated Oil Co., December 3, 1930, 80 Cal. Dec. 607 ..... 10, 15
People v. Associated Oil Co., *et al.*, decided March 26, 1931 9
People v. McKean, 76 Cal. App. 119 23
People v. Osaki, 209 Cal. 169 15
Pierce Oil Co. v. Hopkins, 264 U. S. 137 12
Planter v. Vincent, 194 Cal. 442-3 19
Prentis v. Atlantic etc. Line Co., 211 U. S. 210 17
Prohibition, Sec. 33, Vol. 22, R. C. L. 32-33 21
Quong Ham Wah Co. v. Industrial Com., 225 U. S. 445 12
Radice v. New York, 264 U. S. 292 25
Red "C" Oil Mfg. Co. v. Board of Agriculture, 222 U. S. 379 12
Sec. 8b, Stats. 1929, p. 927 8
Seneca C. G. M. Co. v. Great Western Power Co., 209 Cal. 206 11
Stevenson v. Colgan, 91 Cal. 652 20
Swift & Co. v. United States, 276 U. S. 311 25
Truck Owners etc. Inc. v. Superior Court, 194 Cal. 146 24
United States v. Alford, 274 U. S. 264 17
United States v. Cohen Grocery Co., 255 U. S. 81 13
Virginian R. Co. v. United States, 272 U. S. 658 9
Walls v. Midland Carbon Co., 254 U. S. 300 ..... 7, 12, 16
West v. Kansas Natural Gas Co., 221 U. S. 229 16

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1930.
No. 852.

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation; and Ambassador Petroleum Company, a corporation,

Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the judges thereof,

Appellees.

STATEMENT OF APPELLEES AS TO JURISDICTION ON APPEAL.

May It Please the Court:

The appellees in opposing the jurisdiction of this court to review the above entitled cause on appeal or certiorari respectfully call attention to the brief filed by them on their "Motion to Dismiss the Appeal or Affirm the Judgment Below," and represent:

Nature of Case and Ruling Below.

The appellee Superior Court, having general jurisdiction in equity and particular statutory authority to enjoin the *unreasonable waste of natural gas* at the suit of the Director of Natural Resources in the name of the People of the State, granted a preliminary injunction (reserving power to modify the same upon five days' notice), restraining each defendant, including appellants, operating oil and gas wells in the Santa Fe Springs Oil Field in the State of California, from producing in excess of a given quantity of natural gas each average day from each lease or other property unit until the cause could be tried on its merits. The basis for the quantity of allowed gas production was derived from the potential production of oil from each property unit and the allowed quantity then increased as other factors required to maintain the equitable position of the parties pending the trial of the cause. [Preliminary Injunction, R. p. 295, *et seq.*] This preliminary injunction curtailed appellants' gas production from 57,120,000 to 28,160,000 cu. ft. a day. Of the 57,120,000 cu. ft. it was admittedly blowing to the air approximately 40%, amounting to 22,848,000 cu. ft. a day. (Appellants' Brief in Opposition to Motion, at p. 14.) Upon this preliminary injunction being granted, the appellants applied to the District Court of Appeal of the State of California for a writ of prohibition to prevent the appellee Superior Court from proceeding to enforce the injunction or grant other injunctive relief. An alternative writ of prohibition was issued, and upon the hearing the writ of prohibition was denied by the District Court of Appeal. (Decision and Opinion, *Bandini Pet.*

Co. v. Superior Court, 63 Cal. App. Dec. 1175 [R. p. 333, *et seq.*]. A copy of the opinion is printed at the end of this Statement.) Appellants applied to the Supreme Court of California for a hearing to review the decision of the District Court of Appeal and this application was denied [R. p. 671½]. The appeal to this court is from the final order of the District Court of Appeal of California denying the Writ of Prohibition so sought against the appellee Superior Court proceeding in a suit in equity brought under statutory authority in the name of the People of the State to restrain the unreasonable waste of natural gas declared unlawful by the statutes of the state (Chap. 535, Stats. Cal. 1929, pp. 927-930, Supp. to Brief on Motion, pp. 4, 10. No useful purpose will be served by repeating here the authorities or argument presented in the brief filed by us on "Motion to Dismiss Appeal or Affirm the Judgment Below," and we refer to that brief for a more extended statement of facts and the points and authorities upon which appellees rely.

When the Federal Questions Pressed Have Been So Explicitly Decided by This Court as to Foreclose Further Argument on the Subject, This Court Will Not Take Jurisdiction. Such Is the Case Here.

This rule was clearly stated by this court in *Equitable Life Assurance Society v. Brown,* 187 U. S. 308, 314, as follows:

> "From the analysis just made, it results that although a Federal question was raised below in a formal manner, that question, when examined with reference to the averments of fact upon which it was made to depend, is one which has been so explicitly

> decided by this court as to foreclose further argument on the subject, and hence to cause the Federal question relied upon to be devoid of any substantial foundation or merit. This being so, the case is brought directly within the rule announced in *New Orleans Waterworks Co. v. Louisiana,* 185 U. S. 336, 345, 46 L. Ed. 936, 941, 22 Sup. Ct. Rep. 691, and authorities there cited."

Two Federal questions are raised in this formal manner. The *first* goes to the power of the state to prohibit the waste of natural gas, and the *second,* to the degree of certainty required in the state statute to meet the requirements of "due process of law". The *third* point raised is one of state practice in respect to the sufficiency of the evidence to sustain the jurisdiction of the equity court in issuing the preliminary injunction complained of.

While the District Court of Appeal assumed that the *first* and *second* points involved Federal questions, that court decided each of them on the authority of decisions in this court, which it regarded as having so conclusively and explicitly determined them that under the rule of practice in this court a substantial Federal question no longer exists.

The Power of the State to Prohibit the Waste of Natural Gas Has Been Explicitly Decided by This Court.

The power of each state to frame its laws and policies and in so doing to determine when the intangible right to produce oil and gas through wells drilled on parcels of property shall ripen into ownership of the quantity of oil and gas taken possession of at the surface and to regulate the conflicting rights of landowners in so acquiring title

by statutes prohibiting waste in the interest of the public welfare have been so explicitly decided by this court as to foreclose further argument on the subject. (*Ohio Oil Co. v. Indiana*, 177 U. S. 190; *Bacon v. Walker*, 204 U. S. 313, 315; *Walls v. Midland Carbon Co.*, 254 U. S. 300, followed by the Supreme Court of California in *People v. Associated Oil Co.*, Appx. B, p. 29, Supplement to Brief on Motion herein. Opinion not yet officially reported.)

In its opinion in the last cited case, the Supreme Court of California said:

> "The generally accepted view, therefore, is that the property right of the owner or lessee of land in and to the gas and oil beneath the surface is not an absolute one. Such substances, because of their peculiarity in the natural state, partake more of the nature of common property, title to which becomes absolute when they are captured and reduced to possession. Because of their peculiar nature the public has a definite interest in their preservation from waste and destruction."

The Supreme Court of California by its opinions interpreting and construing this statute has defined and declared the land law of the state so that we now know (1) that the fee title to a parcel of land does not include ownership of oil and gas in a stratum extending under several parcels; (2) that each such fee owner has a right correlative with each other such fee owner to acquire title to his reasonable share of such oil and gas by operations on his land parcel; (3) that the public has an interest in this natural resource of oil and gas before the right of the landowner has been converted into ownership by possession at the surface; (4) that the state may adjust these correlative rights of the several landowners and the

right of the public by a statute to prevent unreasonable waste, leaving the measurement of the correlative rights and the determination of the unreasonable waste as questions of fact to a court of equity. These incidents of the land law of the states have been so long recognized in this court that their determination no longer raises a Federal question.

The subject is considered at greater length under Points C and D of Appellees' Brief on Motion to Dismiss, pp. 17-23.

The Unreasonable Waste Prohibited by the California Statute as Construed by the Supreme Court of That State Is Sufficienctly Certain to Meet All Tests of the Federal Constitution.

(This subject is covered under Point E of Appellees' Brief on Motion to Dismiss, pp. 23-29.)

> "The unreasonable waste of natural gas * * * is hereby declared to be opposed to the public interest and is hereby prohibited and declared to be unlawful. The blowing, release or escape of natural gas into the air shall be *prima facie* evidence of unreasonable waste." (Sec. 8b, Stats. 1929, p. 927, Supp. p. 4.)

Interpreting this language, the Supreme Court of California said:

> "We reiterate that the legislation in question has lawfully vested in the Superior Court the power to determine what wastage of gas in the production of oil is reasonable or unreasonable. *Whether such wastage is reasonable or unreasonable is a question of fact* and should be determined in view of the necessity of one landowner to make productive use of his parcel, in view of the equal right of the adjoining owners not to be deprived of correlative production from their parcels, and in view of the right of the

public to prevent the waste of that which cannot be replaced." (*People v. Associated Oil Co., et al.*, decided March 26, 1931, Appx. "C," Supp. p. 50.)

This court has said:

"The finding of *reasonableness*, like that of undue prejudice, is a determination of a fact by a tribunal informed by experience." (*Virginian R. Co. v. United States*, 272 U. S. 658, 665.)

The District Court of Appeal in its opinion on the order appealed from illustrated this rule of correlative rights to acquire ownership by possession as bounded by the prohibition against unreasonable waste in so doing by analogies from the law of waters where the term, "correlative rights," "reasonable use" and "unreasonable waste" are well known in the opinions of the Supreme Court of the State. (*Bandini Petroleum Co. v. Superior Court* [R. 357.] Copy of the opinion annexed hereto.)

Where correlative rights to beneficial use exist in a common source of water supply, the right of each landowner is to divert a reasonable share of water from the common source for use on his land. When the available supply is limited so that all the land entitled to irrigation may not receive all that can be beneficially used there must be a reasonable proration of the available supply. This does not mean that each acre shall receive the same quantity of water as every other acre or that each owner of land up stream shall have priority to the extent the cropping of his land requires. There are other factors in reasonable use. Land farmed for grain may require one acre foot, vines and trees three acre feet, alfalfa four acre feet, and rice six acre feet per annum. To produce the

same results with a clay subsoil, less than half the water may be required, while land with a rock and gravel subsoil may require twice the normal quantity. The result is that no quantity rule of reasonable use of water generally applicable can be laid down. In the use of water for irrigation there is always the necessary waste incidental to use. Dead water destroys pasturage and the continuous flow requires run-off. This also is the case in irrigating heavy soil while in the irrigation of gravelly soil there is less run-off but increased seepage below. In each case the limit is the boundary between reasonable use and unreasonable waste determined as a question of fact by a court of equity having jurisdiction of the parties possessing the common rights in the source of supply.

The analogy of this usufructuary right to natural gas in producing oil from a gas-oil field is well-nigh complete.

> "It is estimated that only from ten to twenty-five per cent of the total amount of oil deposited in a reservoir is ultimately recovered, depending on the natural characteristics of the reservoir and the methods employed in utilizing the lifting power of the gas. The importance of gas in the oil-producing industry has, therefore, become a question of great concern to the industry itself and to government, to the end that its function may be fully utilized without waste." (*People v. Associated Oil Co.*, Cal. Supreme Ct., Dec. 3, 1930, Supp. to Brief, pp. 34-35.)

The gas occupies the same position in making the field productive of oil that water occupies in making the surface fruitful with crops. It is the primary agent in producing an economic profit from otherwise barren land. There is the same right of many landowners in a common source of the fructifying supply. There is the same variation

among the owners in the quantity of the fructifying agency required to make the land produce the same economic return, be it oil or fruits of the soil. There is the same reason for prorating the allowed use of gas to the potential oil production that there is for prorating the allowed use of water to potential crop production. In each case the basic formula must be modified by other varying factors. These varying factors have such similarity in the two cases as to complete the analogy.

In *Burr v. Maclay Rancho Water Co.*, 154 Cal. 428, the court directed the judgment below to be modified so as to protect the owners of land over the subsurface percolating water who did not desire to make present use of the water against excessive drafts by those desiring to make present use,—a rule greatly to be desired at the present time in the use of gas to produce oil. In *Half Moon Bay Land Co. v. Cowell,* 173 Cal. 543, the court enumerated a long list of the factors properly to be considered in apportioning the waters of the stream among the riparian owners where there is not sufficient for the needs of all, including "the comparative profit of the different uses which could be made of the water on the land, and that when the water is insufficient for all the land or for all of the uses to which it might be applied thereon, and there is enough only for that use which is more valuable and profitable, the shares may properly be limited to and measured by the quantity sufficient for that use, and the proportions fixed accordingly." In the more recent cases of *Irrigation Dist. v. Mt. Shasta Power Corp.*, 202 Cal. 56, 63, and *Seneca C. G. M. Co. v. Great Western Power Co.*, 209 Cal. 206, 221, the court enlarges upon the

riparian right as being a reasonable proportion of the quantity available and not a fixed quantity out of the stream flow, applying in this regard the rule which this court applied to the use of gas in the case of *Walls v. Midland Carbon Co.*, 254 U. S. 300. In each case the ultimate fact is the *reasonable share* or proportion of the supply. The District Court of Appeal in its opinion on rendering the order appealed from discussed at some length the analogy between the rules of law applicable to the gas and water which will be found in the copy attached to this Statement.

Assuming that the standard of unreasonable waste contained in the language of the legislature was uncertain, it was clearly intelligible. When read with the interpretation by the Supreme Court of the State of California any uncertainty is made certain. This court as a Federal question reads the statute with the interpretation of the state courts. (*Lindsley v. Natural Carbonic Gas Co.*, 220 U. S. 61.) If the interpreted statute meets the requirements of a primary standard properly referable to and found intelligible by a state tribunal, all requirements of the Federal Constitution are met (*Quong Ham Wah Co. v. Industrial Com.*, 225 U. S. 445, 448; *Pierce Oil Co. v. Hopkins*, 264 U. S. 137, 139).

Mr. Chief Justice White, speaking for this court in *Red "C" Oil Mfg. Co. v. Board of Agriculture*, 222 U. S. 379, 394, says:

> "The legislative requirement was that the illuminating oils furnished in North Carolina should be safe, pure, and afford a satisfactory light, and it was left to the board of agriculture to determine what oils

would measure up to these standards. We think a sufficient primary standard was established, and that the claim that legislative powers were delegated is untenable."

Here words of limitation are held a sufficient primary standard. "Safe", how safe? The ingenuity of man has never created any contraption perfectly safe. "Pure"—the imagination of theologians and the efforts of chemists have been spent in imagining or perfecting—comparative purity. "Afford a satisfactory light"—satisfactory for what purpose to to whom? The answer of course is that the statute required a reasonably safe oil, a reasonably pure oil, an oil which will afford a reasonably satisfactory light for the ordinary purposes of mankind when used in the accustomed way. The definition construed as requiring an oil reasonably safe, reasonably pure, and which will furnish a reasonably satisfactory light, fully meets the tests suggested by Mr. Chief Justice White in *United States v. Cohen Grocery Co.*, 255 U. S. 81, and by Mr. Chief Justice Taft in *Cline v. Frink Dairy Co.*, 274 U. S. 445, when the question is not one of price fixing. The decisions in this court holding the price fixing provisions of the Lever Act unconstitutional as not informing the common citizen of what was required of him are sufficiently distinguished by the Supreme Court of California in interpreting the statute of that state. (*People v. Associated Oil Co.*, Appendix B, Supp. to Brief, pp. 33-38.)

In construing Section 40 of the Lever Act as furnishing too uncertain a standard of conduct upon which the ordinary citizen engaged in business must act at his peril, this court has insistently said:

> "Observe that the section forbids no specific or definite act. It confines the subject matter of the investigation which it authorizes to no element essentially inhering in the transaction as to which it provides. It leaves open, therefore, the widest conceivable inquiry, the scope of which no one can foresee, the result of which no one can foreshadow or adequately guard against."

Clearly, the legislation of the State of California regulating the production of natural gas to prevent waste now under consideration, when applied to the peculiar subject matter involved, is quite different from the provisions of the Lever Act. By the California legislation, the operator of an oil and gas well is put on notice as soon as he permits any gas to be released to the air that he must justify such release as reasonable. He is told that it is the unreasonable waste of natural gas by the operator of any land in each particular oil field that is opposed to the public interest prohibited and declared to be unlawful. (Sec. 8b.) Each operator of oil wells within a given oil field knows what is meant by the reasonable production of gas in that field in the operation of the particular wells under his control, just as the farmer in an arid country knows when he is using an unreasonable share of water from the common source from which all farmers within his district must draw their supply. The California statute goes further, and while it charges the oil operator with notice that he is unreasonably wasting gas when he releases any to the air this notice is only *prima facie* evidence against him. He is entitled under the act as construed by the Supreme Court of the state to a hearing in a court of equity and to a finding upon evidence in the usual course of a trial in that court as to whether in fact he was or

was not unreasonably wasting the common supply of gas available to all operators in the field. The presumption holds only "until the condition is shown by legal proof" (*Freese v. Hibernia Sav. Soc.*, 139 Cal. 392, 395). "In prescribing that any waste shall be *prima facie* evidence of unreasonable waste, the state has cast upon the party found to be wasting gas the burden of justifying the same." (*People v. Associated Oil Co.*, December 3, 1930, 80 Cal. Dec. 607, 616, Supp. p. 39.) When the proof disclosed that appellants were blowing to the air over 22,000,000 cubic feet of gas a day amounting to forty per cent of their total production, the statutory *prima facie* evidence was sustained by positive proof which appellants had every opportunity to repel. The rule of the California Supreme Court conforms in every particular to the constitutional limitations required by this court. In fact the California rule is derived from decisions in this court. (*People v. Osaki*, 209 Cal. 169, 194, and cases cited.)

The right of the state to provide what shall constitute *prima facie* evidence in this class of cases has been sustained by this court. (*Lindsey v. National Carbonic Gas Co.*, 220 U. S. 61, 81.)

Under statutes of this kind something must necessarily be left to the judgment of the well operator, and there is an element of estimation involved when determining what is reasonable or unreasonable under the circumstances. But this is always true when the right of the person concerned is a joint or co-tenancy, or a correlative right in which others have a proportional interest. Sustaining the Wyoming statute to prevent the waste of gas this court said:

"It will be observed that the act under review does not prohibit the use of natural gas absolutely. It prohibits, or to use its words, declares it to be a 'wasteful and extravagant use of the gas when it is burned or consumed without the heat therein contained being fully and actually applied and utilized for either manufacturing or domestic purposes.' (314.)

* * * * * * * *

"We said, citing a case, 'possession of the land is not necessarily possession of the gas,' and again, on the authority of cases, 'that the property of the owner of lands in oil and gas is not absolute until it is actually in his grasp, and brought to the surface.' It was decided, however, that before that event occurs, indeed, in prevention of it, the state may interpose its power to prevent a waste or disproportionate use of either oil or gas by a particular owner in order to conserve the equal right of other owners and advance the public interest. (316-317.)

* * * * * * * *

"The determining consideration is the power of the state over, and its regulation of, a property in which others besides the companies may have rights, and in which the state has an interest to adjust and preserve, natural gas being one of the resources of the state. And in this consideration it is more important to consider not for what a particular owner uses the gas, but the proportion of his use to that of others; or it may be the prevention of use by others." (319.)

Walls v. Midland Carbon Co., 254 U. S. 300, 314, 316-317, 319.

West v. Kansas Natural Gas Co., 221 U. S. 229, referring to the Oklahoma statute in delivering the opinion of this court, Mr. Justice McKenna said:

"The provisions of the statute are not directed against waste. They are directed against any use of

> the gas except in the state. The right of the state 'to preserve the common supply for the equal use of all' owners is not denied by appellees. We put the question out of consideration therefore, except incidentally, *and concede the right of the state to preserve the supply of gas* as we shall hereafter set forth." (p. 251.)

The words "unreasonable waste of natural gas" as interpreted by the California courts have a meaning "well enough known to enable those within their reach to clearly apply them". They have "a well-known common law meaning" in the law of waters of California. From "the subjects with which the statute dealt a standard of some sort was afforded" which is made certain by the interpretation of the courts of the state.

The standard prescribed by the Supreme and Appellate Courts in California under the statute presents a more definite standard for the conduct of the oil operators "within their reach to clearly apply them" than was presented by the language sustained as sufficient in *United States v. Alford,* 274 U. S. 264. The provisions of the act, therefore, meet the conditions prescribed by this court, where you have said construing other statutes:

> "Men familiar with the range conditions and desirous of observing the law will have little difficulty in determining what is prohibited by it." (Omaechevarria v. Idaho, 246 U. S. 348.)

It is immaterial that the interpretation of the primary standard was left to the Superior Courts in California rather than to an administrative tribunal. (*Federal Radio Commission v. General Electric Co.,* 280 U. S. 537; *Prentis v. Atlantic etc. Line Co.,* 211 U. S. 210.)

Where the statute as construed by the state court of last resort meets the requirements of "due process of law" by charging the class of persons within reach of the statute with knowledge of what acts are prohibited there is no longer a Federal question for review in this court. (*Bevins v. State of Iowa*, No. 574, Oct. Term, 1930.)

Pleading and Record on Application for Writ of Prohibition.

To the *third* point, that of the evidence to sustain the findings essential to jurisdiction under state practice, the District Court of Appeal near the close of its opinion said:

> "Another answer to this argument of petitioners is that having determined that the court has the jurisdiction to determine what is an unreasonable waste, we cannot interfere by the writ of prohibition to deprive its judgment of effect. And we here direct attention to the determination of the respondent court that 'there appears to be an unreasonable waste of natural gas in the Santa Fe Oil Field', and 'that the evidence available . . . shows that the unreasonable waste of natural gas in said field may be substantially reduced and that the equities of all parties may be fairly conserved by a preliminary injunction which will limit the waste of gas by restricting the production thereof to a quantity reasonably in excess of the present outlets for beneficial use above ground, etc., etc.' It does not appear from the facts presented to us that in so far as the particular case before us is concerned the court exceeded its jurisdiction in finding as we have already quoted." [Opinion, R. 362-363.]

The so-called "Uncontradicted and Admitted Facts" (Appellant's Statement, pp. 9-18) are largely the controverted facts constituting the material issues raised by the complaint and answer in the cause pending before the

appellee Superior Court wherein the People of the State of California are plaintiffs and the appellants here are defendants. No replication to new matter alleged in the answer is required under California practice. (*Code Civil Proc.*, Sec. 462; *Planter v. Vincent*, 194 Cal. 442-3.) The demurrer of appellee court admitted the facts properly pleaded in the petition for the writ of prohibition, viz., that it was a court of general jurisdiction, that defendants had appeared in response to process, and that it would enforce the preliminary injunction pending the trial of the issues of fact unless prohibited by higher authority. It is only facts properly pleaded in the cause that are admitted by demurrer. (*Bank of Cal. v. Roberts*, 248 U. S. 497, 500.) These appellants could not substitute the appellee court as an adverse party in place of the plaintiffs, and by repeating in their petition for the writ of prohibition the allegations of their answer to the complaint below try in the District Court of Appeal the issues of fact raised by complaint and answer in the appellee trial court. When a party seeks to test the jurisdiction of a court on the ground that a statute violates the constitution, and it is necessary to establish a fact of which the court will not take judicial notice, the remedy of the party is by appeal. Where the court sought to be restrained by a writ of prohibition has general jurisdiction of the subject matter of the action and facts must be found to take the case out of its jurisdiction, the question cannot be presented on application for a writ of prohibition (*Murphy v. Superior Court*, 84 Cal. 592). Such was the conclusion reached in the instant case where the Supreme Court of the State of California denied a hearing after decision by the District Court of Appeal denying the writ of prohibition.

As this court, in *Ex parte Alix,* 166 U. S. 136, said:

> "The settled rules in reference to the writ of prohibition were thus laid down in *Re Rice,* 155 U. S. 396, 402 (39: 198, 201): 'Where it appears that the court whose action is sought to be prohibited has clearly no jurisdiction of the cause originally, or of some collateral matter arising therein, a party who has objected to the jurisdiction at the outset and has no other remedy is entitled to a writ of prohibition as a matter of right. But where there is another legal remedy by appeal or otherwise, or where the question of the jurisdiction of the court is doubtful, or depends on facts which are not made matter of record, or where the application is made by a stranger, the granting or refusal of the writ is discretionary. Nor is the granting of the writ obligatory where the case has gone to sentence, and the want of jurisdiction does not appear upon the face of the proceedings. *Smith v. Whitney,* 116 U. S. 167, 173 (29: 601, 603; *Ex parte Cooper,* 143 U. S. 472, 495 (36: 232, 239.)'
>
> "Tested by these rules, we are clear that a proper case is not made for awarding the writ of prohibition."

Where the constitutionality of a statute is called in question by an application for a writ of prohibition or for other extraordinary remedy before trial on the issues of fact, the court is confined to the statute and matters of which it takes judicial knowledge. (*Stevenson v. Colgan,* 91 Cal. 652;*Frohliger v. Richardson,* 63 Cal. App. 209, 214.)

> "Issues of fact relating to the jurisdiction of the court are by no means usual, for the contention of the applicant ordinarily is either that the court has no jurisdiction of the subject matter, or though having jurisdiction of the subject matter, has no authority whatever to take the action complained of and sought to be prevented and whether such contention

> is well founded depends upon the constitution and laws of the state of which all courts must take notice. Where the case respecting which the writ is sought has proceeded to judgment, the jurisdiction of the court can be assailed only on the face of the proceedings, but even then the question may be presented whether this involves a re-examination of the evidence on which the court acted in so far as it relates to jurisdictional matters. 'Before judgment, if the court below persists in going on when it should not, the court above can examine not simply the process and pleadings technically of record, but the facts in evidence upon which the action is to be taken.'" (Prohibition, Sec. 33, Vol. 22, *R. C. L.* 32-33, citing and quoting from *In re Cooper,* 143 U. S. 472, 504, *et seq.*)

In *Jacobsen v. Superior Court,* 192 Cal. 319, so greatly relied upon by appellants, it was held that the jurisdiction of the Superior Court in equity was separate and distinct from its jurisdiction in eminent domain, and that the Superior Court in equity did not have jurisdiction by a temporary injunction to oust the owners of real property until by an action in eminent domain the public body entitled to acquire such easement as was necessary for public uses had done so by a proceeding for that purpose in eminent domain, saying:

> "This public right, however, has always and everywhere been limited and safeguarded by express provisions of the constitutions and statutes of the several states and it has been uniformly held that being *in invitum* and in derogation of the common right, its exercise is strictly defined and limited by the express terms of the constitution or statute creating it." (192 Cal. 325.)

Neither the Supreme Court nor the District Court of Appeal of California, nor this Court has ever held, suggested

or implied, that a court of equity in a cause arising in equity where it had jurisdiction of the subject matter and of the parties would be deprived of its equitable jurisdiction by a writ of prohibition because an appellate court considered that the Chancellor enjoined too much.

If we are to look to the evidence before the appellee court, which the District Court of Appeal found sufficient to sustain its jurisdiction, and the preliminary injunction in the exercise of that jurisdiction, we need turn only to the testimony of the witness Dr. Stanley Herold, quoted in Appendix B of the Supplement to Appellants' Brief, p. 14, where the witness says: "Water under hydrostatic head transmitting its pressure into *edgewater surrounding the pools*, is the source of energy throughout the remaining life of the wells on settled production." If hydrostatic head of edgewater is the source of producing energy, then every well opened into the pool is affected by the production of every other well, and it necessarily follows that the rights of each owner producing from the same pool are correlative.This question of the influence of adjacent wells producing from the same pool and the effect of back pressure in increasing the ultimate recovery of oil and reducing the daily production is considered in more detail in the affidavit of Mr. E. G. Gaylord [R. 79-85.] The quantity of gas blown to the air and the quantity of oil produced by appellants is shown in the schedules annexed to the preliminary injunction and the order modifying the preliminary injunction, but as appellants do not question that they were blowing to the air substantially forty (40%) per cent of the 57,120,000 cubic feet of gas produced, amounting to a daily blow of 22,848,000 cubic

feet and appellants were allowed to produce 28,160,000 cubic feet under the order (Appellants' Brief in Opposition to Motion, p. 14), it is unnecessary to make further reference to the evidence.

The penal provisions of the statute apply only to the inspection of wells, fraudulent reports and acts of similar character. (*People v. McKean*, 76 Cal. App. 119, *et seq.*, and cases cited; *McFadden v. Lick Pier Co.*, 101 Cal. App. 17.) In any event, as stated by this court in *Ohio River & W. R. Co. v. Dittey*, 232 U. S. 576, 594:

> "But these actions do not involve any present attempt to enforce the penalties; and the act contains a section which in terms declares: 'The sections of this act, and every part of such sections, are hereby declared to be independent sections and parts of sections, and the holding of any section or part thereof to be void or ineffective shall not affect any other section or part thereof.' The penalty clauses, if themselves unconstitutional, are severable, and there is therefore no present occasion to pass upon their validity."

Such a provision is also contained in Section 52 of the California statute.

The only remedy for enforcing the prohibition of the statute against the unreasonable waste of natural gas involved here is an action in equity in the appellee Superior Court under section 14b of the act which expressly provides that such action may be brought "regardless of whether proceedings have or have not been instituted under" the provisions of the act authorizing a hearing before the State Oil and Gas Supervisor. It is, therefore, unnecessary to consider the constitutional objections suggestive to those provisions of the act authorizing the State

Oil and Gas Supervisor to determine what is unreasonable waste. (*Board of Trade v. Olsen*, 262 U. S. 1, 42; *Bacon Service Corp. v. Huss*, 199 Cal. 21, 35.) His determination in any event could only be enforced after hearing *de novo* by the appellee court.

When a party attacks the constitutionality of a statute by application for a writ of prohibition or other extraordinary writ to halt the process of a court of equity in a matter of equitable cognizance, it must be prepared to demonstrate that the statute is void, root and branch, so that no possible decree can be valid under the statute. This must be the true rule, because if the writ of prohibition is granted the equity court is prohibited from going forward and finding the facts to differentiate situations in which the statute will be valid from those where there will be a violation of the supreme law. On the other hand, if the writ is denied and the injunctive orders of the equity court deprive a party of his constitutional rights by reason of any peculiar situation in respect to the subject matter, the error may be corrected by application to the equity court for modification of its orders or by appeal. The California Supreme Court and the District Court of Appeal in denying the writ of prohibition have done no more than say to the appellee equity court: "You have jurisdiction to determine the fact of what constitutes an unreasonable waste of natural gas under the statute. That determination is subject to appeal, and if and when such appeal is taken we will determine whether or not error has been committed." A writ of prohibition cannot be converted into a substitute for appeal where appeal is allowed. (*Truck Owners etc. Inc. v. Superior Court*, 194 Cal. 146,

155; *Mt. Vernon-Woodberry etc. Co. v. Alabama I. P. Co.*, 240 U. S. 30. See, also, *Swift & Co. v. United States*, 276 U. S. 311.)

If this court should reverse the California courts and order that a writ of prohibition issue to the appellee court of equity it would thereby prevent a trial on the merits to determine the questions of fact raised by the complaint and answer as to whether or not there were peculiar situations requiring a different form of injunction to be applied to some of the operating properties in the Santa Fe Springs Oil Field. The language of Mr. Justice Sutherland in respect to the applications of the statute to particular conditions as found in *Euclid v. Ambler Realty Co.*, 272 U. S. 395, and *Radice v. New York*, 264 U. S. 292, 296, is particularly pertinent here.

Conclusion.

It appearing that each of the Federal questions raised in the formal manner required have been explicitly decided by this court contrary to the contentions of appellants, and that if any error was committed by the appellee court it was committed in the exercise of jurisdiction and not in excess of its jurisdiction, it is respectfully submitted that this court should decline to take jurisdiction.

U. S. WEBB,
Attorney General of the State of California,
JAMES S. BENNETT,
Attorney for the Director of Natural Resources of the State of California,
Attorneys for Appellees.

Opinion of the District Court of Appeal.

Civil No. 7292. Second Appellate District, Division two. November 29, 1930.

Bandini Petroleum Company (a Corporation), Commodore Petroleum Company (a Corporation), Wilshire Oil Company, Inc., (a Corporation), Wilshire Annex Oil Company, (a Corporation), and Ambassador Petroleum Company (a Corporation), Petitioners, v. The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as one of the Judges thereof, Respondents.

Application for writ of prohibition prayed to be directed to the Superior Court of Los Angeles County, William Hazlett, Judge, to restrain enforcement of a preliminary injunction and other orders in a proceeding to enjoin petitioners from unreasonably wasting natural gas from certain oil wells in Santa Fe Springs oil fields. Writ *denied.*

For Petitioners—Call & Murphey, Robert B. Murphey, Wm. L. Murphey.

For Respondents—U. S. Webb, Attorney-General; James S. Bennett.

Amici Curiae—Charles A. Son, Arthur R. Smiley, Roland Rich Woolley, Rush M. Blodget, George W. Nilsson, Robt. M. Pease, Roy P. Dolley.

This is an original prohibition proceeding. The petitioners seek to prevent the respondent court from enforcing a preliminary injunction and order modifying the same and also to check any further order or proceeding against them in an action pending in the respondent court entitled *People of the State of California on relation of*

Fred G. Stevenot, Director of Natural Resources of the State of California v. Associated Oil Company et al., which action was brought for the purpose of enjoining all of the defendants therein named from unreasonably wasting natural gas from their wells in the Santa Fe Springs oil field. On March 19, 1930, after hearing the parties to the action, the court granted a temporary injunction limiting and defining the amount of gas which the defendants would be allowed to permit to escape into the air from their wells in the field mentioned. On March 28, 1930, the court made another order somewhat relaxing the terms of the injunction pendente lite. It is asserted by petitioners that they have been irreparably injured and damaged by attempting to curtail the production of natural gas; that there is no market for a large part thereof and that if they are to be allowed as they claim it is their right, to employ the gas as a lifting power to raise the oil from below the surface they must of necessity permit a portion thereof to escape into the air; that prior to the temporary injunction they were producing 19,554 barrels of oil per day but that operating most efficiently under the amount of gas allowed to be used by the modified order they cannot possibly produce more than 10,211 barrels per day.

The action was instituted in the respondent court pursuant to the provisions of "An act to protect the natural resources of petroleum and gas from waste and destruction, etc.," (Stats. 1929, p. 923) the sections of which pertinent at this point in our discussion read as follows: "Sec. 8b. The unreasonable waste of natural gas by the act, omission, sufferance or insistence of the lessor, lessee or operator of any land containing oil or gas, or both,

whether before or after the removal of gasoline from such natural gas, is hereby declared to be opposed to the public interest and is hereby prohibited and declared to be unlawful. The blowing, release or escape of natural gas into the air shall be prima facie evidence of unreasonable waste. (Sec. 14b.) Whenever it appears to the director of the department of natural resources that the owners, lessors, lessees or operators of any well or wells producing oil and gas or oil or gas are causing or permitting an unreasonable waste of gas, he may institute, or have proceedings insituted, in the name of the people of the State of California, to enjoin such unreasonable waste of gas regardless of whether proceedings have or have not been instituted under section 8" (a section authorizing the oil and gas supervisor to issue certain orders) "hereof, and regardless of whether an order has or has not been made therein. Such proceedings shall be instituted in the superior court for the county in which the well or wells from which the unreasonable waste of gas is occurring or any thereof are instituted. The owners, lessors, lessees or operators causing or permitting an unreasonable waste of gas in the same oil or gas fielld, although their properties and interests may be separately owned and their unreasonable waste separate and distinct, may be made parties to said action. In such suits no restraining order shall be issued ex parte, but otherwise the procedure shall be governed by the provisions of chapter three, title seven, part two of the Code of Civil Procedure of the State of California" (a chapter relating to injunctions) "and no temporary or permanent injunction issued in such proceedings shall be refused or dissolved or stayed pending appeal

upon the giving of any bond or undertaking, or otherwise."

The arguments of the petitioners may be grouped into the following propositions: First: The act deprives petitioners of property without just compensation and without due process of law. Second: The statute is void for uncertainty and for failure of the legislature to define a standard of conduct. Third: The enactment permits the use of gas for lifting purposes in a reasonable proportion to the amount of oil produced and that the uncontroverted evidence shows no other or greater use and for that reason the court was without jurisdiction to grant the temporary injunction.

Turning then to the first contention, it is asserted that the act is violative of the Fourteenth Amendment to the federal Constitution and sections 12 and 14 of article I of the state Constitution. To put the argument most favorably for the petitioners it is asserted that they have the same vested right to make use of the gas under their property for the purpose of lifting the oil thereunder that a riparian owner has to make use of the underflow of a stream passing through his property to lift the waters to levels of entry upon his land. It is therefore insisted by counsel that it is of prime importance to examine the nature of petitioners' rights. While this is true in a degree, yet we do not attach the same weight as do petitioners to the pure legal question whether the owner of the surface is the owner of the gas in place under his soil subject to the right of an adjoining owner to appropriate to himself the title thereto by capture and possession, or whether the owner of the surface vested only with the right to bore

for gas and reduce it to possession. In either event he is the owner of a valuable right. Every owner of the surface has a like interest and right of property, whatever it may be. We think, however, that the better reasoning, on account of the self-propelling or migratory character of natural gas, as well as oil, dictates the conclusion that while in general we may speak of the owner of the surface as being the owner of the gas and oil in place, what we really mean is that he and he alone has the right through his own property to endeavor to reduce the substances to possession; that when they are reduced to possession and then only does he have an absolute and unqualified title thereto. It is argued by petitioners and by some of those who have appeared as amici curiae that the law of California is settled to the effect that the owner of the surface is the owner of the gas and oil in situ. There are some general expressions in the authorities to this effect, particularly in tax cases where assessments have been levied upon a lease giving and granting to the lessee the right to bore for and extract the hydro-carbon substances. But they are not controlling or helpful here. On the other hand, in distinguishing between oil and other minerals in the case of *Acme Oil Co. v. Williams,* 140 Cal. 681, 74 Pac. 296, the Supreme Court said: "Oil, on the contrary, is of a fluctuating, uncertain, fugitive nature, lies at unknown depths, and the quantity, extent, and trend of its flow are uncertain. It requires but a small surface area, in what is known as an oil district, upon which to commence operations for its discovery. But when a well is developed the oil may be tributary to it for a long distance through the strata which holds it. This flow is not inex-

haustible, no certain control over it can be exercised, and its actual possession can only be obtained, *as against others in the same field,* engaged in the same enterprise, by diligent and continuous pumping. *It is the property of anybody who can acquire the surface right to bore for it,* and when the flow is penetrated, he who operates his well most diligently obtains the greatest benefit, and this advantage is increased in proportion as his neighbor similarly situated neglects his opportunity." (Italics ours.) It is the co-existence of these rights which authorizes the state to make use of its legislative power. When the rights of one impinge upon the rights of others the state may interpose for the purpose of adjusting and regulating the enjoyment of those rights. This is, in a large part at least, the foundation of all the authorities which support the power of the state to regulate the production of oil and gas. In *Ohio Oil Co. v. Indiana,* 177 U. S. 190, 44 L. Ed. 729, it is said: "No one owner of the surface of the earth, within the area beneath which the gas and oil move, can exercise his right to extract from the common reservoir, in which the supply is held, without to an extent diminishing the source of supply as to which all other owners of the surface must exercise their rights. The waste by one owner, caused by a reckless enjoyment of his right of striking the reservoir, at once, therefore, operates upon the other surface owners," and ". . . (T)he surface proprietors within the gas field all have the right to reduce to possession the gas and oil beneath. They could not be absolutely deprived of this right which belongs to them without a taking of private property. *But there is a coequal right in them all to take from a common source of supply the two substances which in the nature of things*

are united, though separate. It follows from the essence of their right and from the situation of the things as to which it can be exerted, that the use by one of his power to seek to convert a part of the common fund to actual possession may result in an undue proportion being attributed to one of the possessors of the right to the detriment of the others, *or by waste by one or more to the annihilation of the rights of the remainder.* Hence it is that the legislative power, from the peculiar nature of the right and objects upon which it is to be exerted, can be manifested for the purpose of protecting all the collective owners, by securing a just distribution, to arise from the enjoyment, by them of their privilege to reduce to possession, and to reach the like end by preventing waste." (Italics ours.) In *Lindsley v. Natural Carbonic Gas Co.,* 220 U. S. 61, 55 L. Ed. 369, where the court was considering a statute designed to prevent the waste of natural mineral water by pumping for the purpose of extracting the gas therefrom, after reference to and a discussion of the Ohio Oil Company case just mentioned, it is said: "The mineral waters and carbonic acid gas exist in a commingled state in the underlying rock, and neither can be drawn out without the other. They are of value in their commingled form and also when separated, but the greater demand is for the gas alone. Influenced by this demand, some surface owners, having wells bored or drilled into the rock, engage in extensive pumping operations for the purpose of collecting the gas and vending it as a separate commodity. Usually where this is done an undue proportion of the commingled waters and gas is taken from the common supply, and a large, if not the

larger, portion of the waters from which the gas is collected is permitted to run to waste. Thus these pumping operations generally result in an unreasonable and wasteful depletion of the common supply and in a corresponding injury to others equally entitled to resort to it. It is to correct this evil that the statute was adopted, and the remedy which it applies is an enforced discontinuance of the excessive and wasteful features of the pumping. It does not take from any surface owner the right to tap the underlying rock and to draw from the common supply, but, consistently with the continued existence of that right, so regulates its exercise as reasonably to conserve the interests of all who possess it. That the state, consistently with due process of law, may do this, is a necessary conclusion from the decision in the case cited. But were the question an open one, we still should solve it in the same way." We ought to pause long enough to direct attention to this last sentence on account of its bearing upon the argument presented here that the rule established by *Ohio Oil Co. v. Indiana,* supra, has become obsolete.

In *Commonwealth v. Trent,* 117 Ky. 34, 4 Am. & Eng. Ann. Cas. 209, the court places the source of the regulatory power upon both grounds in the following language: "It is well known that the supply of gas is limited, and may be exhausted. The act is intended to protect the supply from waste. Under the act, it is conceded, a person to exhaust the supply of his neighbor, cannot put down wells on his own land and allow the gas to escape from the well. . . . The legislature may protect from waste the natural resources of the state, which are the common heritage of all. The right of the owner of property to do

with it as he pleases is subject to the limitation that he must have due regard for the rights of others. To allow the storehouse of nature to be exhausted by the waste of the gas would be to deprive the state and its citizens of the many advantages incident to its use. That the legislature may prevent this is well settled." (Citing cases.) In Oklahoma the statute not only prevented the escape of gas into the air, "the intentional drowning with water of a gas stratum", the "underground waste" of gas, but also the "wasteful utilization of such gas". The supreme court of that state in the case of *Quinton Relief Oil & Gas Co. v. Corporation Commission,* 224 Pac. 156, after referring to *Walls v. Midland Carbon Co.,* 254 U. S. 300, 65 L. Ed. 276, where a somewhat similar statute of Wyoming was under scrutiny, said: "A careful examination of the authorities show that there is almost unanimity in holding that the burning of natural gas for carbon purposes in high pressure fields, having sufficient rock pressure to force gas through a pipe line to domestic consumers, and where the same may be used for such purpose, constitutes a wasteful utilization thereof. Natural gas has twice the heating units as (sic) artificial gas, and taking into consideration the convenience of natural gas, it is intrinsically worth more than artificial gas; its market value being from $2.00 to $3.00 per thousand cubic feet. The amount of carbon black produced from 1000 cubic feet of natural gas has a market value of about 10 cents. It therefore is obvious that the state, in the proper exercise of its police power and in conservation of so valuable a natural resource as natural gas, may prohibit the wasteful utilization of the same in the interest of the public welfare." In *State v.*

Carson Carbon Co., 162 La. 781, 111 So. 162, the supreme court of Louisiana sustained an enactment by which the owners of gas wells were prohibited from taking and using for the manufacture of carbon black more than 20 per cent of the potential capacity of a gas well. In *Oxford Oil Co. v. Atlantic Oil & Producing Company*, 22 Fed. (2d) 597, the court says: "The right of a state to so regulate the drilling of wells for oil and gas as to conserve the rights of adjoining owners is too well settled to admit of serious controversy. (*Ohio Oil Co. v. Indiana*, 177 U. S. 190, 20 S. Ct. 576, 44 L. Ed. 720; *Lindsley v. Natural Carbonic Gas Co.*, 220 U. S. 61, 31 S. Ct. 337, 55 L. Ed. 369, Ann. Cas. 1912C, 160.) It was within the power of the legislature to lay down a general rule for the protection of the mineral rights of the owners of adjoining lands, and to leave the details of enforcing that rule to an administrative agency or board. (*Plymouth Coal Co. v. Pennsylvania*, 232 U. S. 531, 34 S. Ct. 359, 58 L. Ed. 713.)" By a divided court in the case of *Walls v. Midland Carbon Co.*, 254 U. S. 300, 65 L. Ed. 276, a statute of Wyoming declaring the use of natural gas from a well within 10 miles of an incorporated city "without the heat therein contained being fully and actually applied and utilized for either manufacturing or domestic purposes" to be a "wasteful and extravagant use" and unlawful, was held valid and constitutional. The court reasserted the doctrine that "a state may consider the relation of rights, and accommodate their coexistence, and, in the interest of the community, limit one that others may be enjoyed." It also says: "The determining consideration is the power of the state over, and its regulation of, a property in which others besides the companies may have rights and in which

the state has an interest to adjust and preserve, natural gas being one of the resources of the state. And in this consideration it is more important to consider not for what a particular owner uses the gas, but the proportion of his use to that of others, or, it may be, the prevention of use by others; . . ." It is apparent from the quotations that the legislative power of the state may be exercised for the purpose of adjusting coexisting rights. They also tend to indicate that the state may restrict or regulate the production of oil or gas on the theory of the public's interest in their natural resources. Whether this latter may be done we think is unnecessary to a decision of the present application. But as indicating that there is grave doubt concerning this power we here make reference to the case of *West v. Kansas Natural Gas Co.*, 221 U. S. 229, 55 L. Ed. 716. The state of Oklahoma attempted to prohibit the construction of pipe lines for natural gas or the transportation of the same except by domestic corporations, the charters of which were to provide that it should only be transported between points in the state and not outside. The court in declaring the statute void said with reference to the power of the state to "preserve the common property" as distinguished from the right of the state to prevent waste: "The extent of power which the second question implies a state possesses challenges serious inquiry. The natural resources of a state may be other than natural gas; for example, may be timber and coal and iron and other metals; but it is contended that the right of conservation extends to these, and the broad statement of the first question" (the right of the state to preserve its resources) "is qualified in the argument by the

properties of natural gas and the limitation of its supply. This, it is contended, gives a range to the police power of the state which otherwise it would not possess. And such power, as we understand the further contention to be, may determine not only the conservation of the resources of the state but as to what class of persons may use them, as dependent upon their transportation in state, rather than in interstate commerce. . . . The statute of Indiana" (considered in *Ohio Oil Co. v. Indiana,* supra) "was directed against waste of the gas, and was sustained because it protected the use of all the surface owners against the waste of any. The statute was one of *true conservation securing the rights of property, not impairing them.* Its purpose was to secure to the common owners of the gas a proportionate acquisition of it—a reduction to possession and property—not to take away any right of use or disposition after it had thus become property. It was sustained because such was its purpose; and we said that the surface owners of the soil, owners of the gas as well, *could not be deprived of the right to reduce it to possession without the taking of private property.* It surely cannot need argument to show that if they could not be deprived of the right to reduce the gas to possession, they could not be deprived of any right which attached to it when in possession. The Oklahoma statute far transcends the Indiana statute. It does what this court took pains to show that the Indiana statute did not do. It does not protect the rights of all surface owners against the abuses of any. *It does not alone regulate* the right of the reduction to possession of the gas, but, *when the right is exercised,* when the gas becomes property, takes from it the attributes of property—the right

to dispose of it; indeed, selects its market, to reserve it for future purchasers and use within the state, *on the ground that the welfare of the state will thereby be subserved. The results of the contention repel its acceptance. Gas, when reduced to possession, is a commodity; it belongs to the owner of the land; and, when reduced to possession, is his individual property, subject to sale by him, and may be subject to intrastate commerce and interstate commerce.* The statute of Oklahoma recognizes it to be a subject of intrastate commerce, but seeks to prohibit it from being the subject of interstate commerce, and this is the purpose of its conservation. In other words, the purpose of its conservation is in a sense commercial—the business welfare of the state, as coal might be, or timber. Both of those products may be limited in amount, and the same consideration of the public welfare which would confine gas to the use of the inhabitants of a state would confine them to the inhabitants of the state. If the states have such power, a singular situation might result. Pennsylvania might keep its coal, the Northwest its timber, the mining states their minerals. And why may not the products of the field be brought within the principle? Thus enlarged, or without that enlargement, its influence on interstate commerce need not be pointed out. To what consequences does such power tend? If one state has it, all states have it; embargo may be retaliated by embargo, and commerce will be halted at state lines. And yet we have said that 'in matters of foreign and interstate commerce there are no state lines.' In such commerce, instead of the states, a new power appears and a new welfare—a welfare which transcends that of any state. But rather let us say it is constituted of the wel-

fare of all of the states, and that of each state is made the greater by a division of its resources, natural and created, with every other state, and those of every other state with it. This was the purpose, as it is the result, of the interstate commerce clause of the Constitution of the United States. If there is to be a turning backward, it must be done by the authority of another instrumentality than a court." (Italics ours.)

It is argued, however, that the statute involved herein does not proceed upon the theory of correlative rights, but only upon the policy of conserving or preserving the common supply. We cannot assent to this statement or construction of the enactment. It is true that section 8b of the act declares the "unreasonable waste of natural gas . . . to be opposed to the public interest" and "to be unlawful," but it is also apparent from a reading of the entire act that unreasonable waste of gas is considered to be the production of an undue proportion of gas to the amount of oil, in the particular field involved, by one surface owner as against others, in those instances where the gas is not conveniently necessary for the "generation of light, heat, power or other industrial purpose." That this is the intent and purpose of the law is made manifest from the following quotation from section 8d: "If it shall appear that gas is being produced from any oil well or wells in quantities exceeding *a reasonable proportion to the amount of oil produced* from the same well or wells, even though it is shown that such excess gas is being used in the generation of light, heat, power or other industrial purpose and that there is sufficient other gas available for such uses from other wells in the same or

other fields in which the gas produced is not in excess of the amount which bears *a reasonable proportion to the amount of oil produced* from such other wells and that there are adequate gas-pipe-line connections between such other wells and the place of utilization of such gas the state oil and gas supervisor shall hold that such excess production of gas is unreasonable waste thereof if such holding will not cause an unreasonable waste of gas in any other field." (Italics ours.) The legislation was evidently adopted upon the theory that in every oil field there is what we may term (at least for illustrative purposes) a normal proportion of gas to oil; that when an unreasonable disproportion of gas to oil exists in a given well there is a corresponding loss of recoverable oil by other owners who would otherwise employ the lifting power of the excessive gas to good purpose; and that this disproportionate production of gas should not be permitted unless the gas as a separate thing be conveniently necessary for domestic or industrial purposes. We have not overlooked the fact that the act makes the blowing or release of gas into the air prima facie proof of unreasonable waste. It is to be observed, however, that such waste is not absolutely prohibited as it was in *Ohio Oil Co. v. Indiana, supra,* but is only made a rule of evidence. But even if such were the results of the act the authorities from which we have quoted would dispose of the arguments of the petitioners. We are, therefore, irresistibly led to conclude that the statute here involved is not as stringent in its restrictions as those in other jurisdictions, and further, that it does not deprive the petitioners of property without just compensation or due process

of law but rather falls within the legislative authority of the state with the wisdom of which we cannot be concerned.

We also find authority of a persuasive character in our own state. In *Ex parte Elam,* 6 Cal. App. 233, 91 Pac. 811, the court was considering a statute to prevent the waste and flow of artesian wells and making it a misdemeanor to waste the flow thereof. On account of the pertinency of the discussion relative to a similar argument we deem it expedient to set forth in full the first question raised therein and the response of the court thereto. We quote as follows:

"The first point made by petitioner—which is that the act is violative of the fourteenth amendment of the Constitution of the United States, which provides that no state shall 'deprive any person of life, liberty, or property without due process of law, nor deny to any person within its jurisdiction the equal protection of the law,' and of article I, section 1 of the Constitution of this state, which provides that 'all men are by nature free and independent, and have certain inalienable rights, among which are those of enjoying and defending life and liberty, acquiring, possessing and protecting property,' and of section 13, article I, which provides that no person shall be 'deprived of life, liberty, or property without due process of law'—seems to have been met and demonstrated to be untenable by the Supreme Court of the United States in the case of *Ohio Oil Co. v. State of Indiana,* 177 U. S. 190, 20 Sup. Ct. Rep. 576. By that case it is established that water, oil, gas, and all fugitive substances held in their natural subterranean reservoirs are exceptions to

the general rule establishing absolute ownership in the proprietor of the surface of all that lies underneath; that these minerals being migratory in their nature, having no fixed situs, are a part of the soil only so long as they are on or in it, but after they escape and go to other lands the title of the former owner is gone; that it follows, therefore, that no one owner of the surface of the earth within the area beneath which these minerals move can exercise his right to extract from the common reservoir in which the supply is held without diminishing the source of supply as to which all other owners of the surface must exercise their rights; that in consequence of the nature of the deposits, of their transmissibility, of their interdependence, of the rights of all and of the public at large, the state could lawfully exercise the power to regulate the right of the surface owners among themselves to seek to obtain possession, and to prevent the waste of the products in which all the surface owners within the area wherein they were deposited, as well as the public, had an interest. 'No devesting of private property under such a condition can be conceived, because the public are the owners, and the enacting by the state of a law as to the public ownership is but the discharge of the governmental trust resting in the state as to property of that character.' This water, the ownership of which, until actual possession is acquired, being in the public, or at least that portion of the public who may own the surface of the soil within the artesian belt, is subject to a reasonable use only by those interested therein. This reasonable use is determined in *Katz v. Walkinshaw,* 141 Cal. 134, 99 Am. St. Rep. 35, 70 Pac. 663, 74 Pac. 766, to be the

use of such amount of the subterranean water 'as may be necessary for some useful purpose in connection with the land from which it is taken.' The conditions existing in this state with reference to the necessity for the conservation of irrigating waters are most clearly set out in the case last cited, and the reasons for the rule restricting the use clearly shown. Whenever a land owner exceeds this reasonable use he is appropriating to himself that which belongs to others who are entitled to a like use, and to that extent is obstructing the free use of property so as to interfere with its comfortable enjoyment, and which, by sections 3479 and 3480, Civil Code, is declared to be a public nuisance. Whatever right one has, even in his own, is subject to that established principle that his use shall not be injurious to the rights of others, *or of the general public*. This act, therefore, relates to waters, the right to the use of which is common to a large portion of the community, and affects the general public right. Legislation in relation thereto affects the public welfare, and the right to legislate in regard to its use and conservation is referable to the police power of the state, which is declared in *Ex parte Whitwell*, 98 Cal. 78, 35 Am. St. Rep. 152, 32 Pac. 870, to be 'the power to make laws to secure the comfort, convenience, peace and health of the community.' 'The police power, deriving its existence from the rule that the safety of the people is the supreme law, justifies legislation upon matters pertaining to the public welfare, the public health, or the public morals.' (*Ex parte Drexel*, 147 Cal. 766, 82 Pac. 429.) It is settled law that all property is held subject to the exercise of police power, and that provisions

of the Constitution declaring that property shall not be taken without due process of law have no application in such cases. (*Odd Fellows' Cem. Assn. v. San Francisco,* 140 Cal. 230, 73 Pac. 987.)" (Italics ours.)

It is to be observed that the case of *Ohio Oil Co. v. Indiana,* supra, is approved and legislation of a character very much akin to the enactment now under scrutiny has been found not to invade the constitutional provisions against deprivation of property without compensation and without due process of law.

In the discussion of the problem to this point we think the essential difference from the question involved in *Herminghaus v. Southern California Edison Co.,* 200 Cal. 81, 252 Pac. 607, is made apparent. It is to be noted that the contest in that case was between a riparian owner, whose rights have long been established in our jurisdiction, and an appropriator of water who cannot divest a private existing right by his act of appropriation. This is quite a different thing from the adjustment and regulation of the coexisting rights of several persons. The rights here involved are more nearly analogous to those discussed in *Ex parte Elam,* supra, and in *Eckel v. Springfield Tunnel etc. Co.,* 87 Cal. App. 617, 262 Pac. 425, in the latter of which cases the rule was reannounced that as between riparian owners one can only take his reasonable share thereof. It is there determined that he cannot take all that is reasonably required to develop his land, but only that amount that will not unreasonably deprive the owners of coequal rights of a proper proportion.

We therefore turn to the second angle of our problem: Is the statute void for uncertainty and the failure of the

legislature to define a standard of conduct? The objection thus urged against the enactment arises from the use of the word "unreasonable." Were it not for the argument that it is not waste to permit the use of the gas to lift the oil to the surface it would be obvious that without the qualifying word the enactment could not be subjected to attack on the ground of uncertainty. As we have heretofore observed, the Indiana statutes prohibited all waste, and the United States Supreme Court concluded it to be a proper exercise of the legislative authority despite the argument that the owners of the surface were entitled to make use of its force to raise the oil from beneath the ground. Undoubtedly the legislature had in mind the Indiana statute and its construction, as well as others from other oil producing states. It would seem to logically follow that they made use of the word unreasonable for the very purpose of providing that the operators of a well might utilize a reasonable proportion of gas for the purpose of lifting the oil to the surface. This thought coincides with that indicated by the language we have already quoted to the effect that it shall be held to be an unreasonable waste of gas for one to produce gas in excess of "a reasonable proportion to the amount of oil produced," when such gas is not conveniently necessary for other than lifting purposes. When viewed in this light we think the word unreasonable is not so uncertain as to render the enactment void and inoperative. In fact, our courts have frequently applied the rule of reasonable use between riparian owners where similar correlative rights are involved. We have already cited the case of *Eckel v. Springfield Tunnel etc. Co.*, and *Ex parte Elam*, and to these we may add the following: *Irrigation Dist.*

v. Mt. Shasta P. Corp., 202 Cal. 56, 259 Pac. 444; *Turner v. The James Canal Co.*, 155 Cal. 82, 99 Pac. 520. In the latter of these two cases the words are so pertinent that they should be quoted. They are: "Out of regard to the equal rights of others whose lands may abut upon the same water the law has declared, as will hereafter be more fully shown, that the use of the water for irrigation, so far as it affects the rights of others similarly situated, *must be reasonable*, and must be confined to a reasonable share thereof. But with this common limitation, the right to use water upon adjoining land applies as well to the water of a lake, pond, slough or any natural body of water, by whatever name it may be called, as to a running stream." (Italics ours.) In a slightly different situation, but still for the purpose of adjusting coequal rights, the Supreme Court applied the same doctrine in *Katz v. Walkinshaw*, 141 Cal. 128, 74 Pac. 766, and *San Bernardino v. Riverside*, 186 Cal. 25, 198 Pac. 784. In the former it said: "The doctrine of *reasonable use*, on the other hand, affords some measure of protection to property now existing, and greater justification for the attempt to make new developments. It limits the right of others to such amount of water as may be necessary for some useful purpose in connection with the land from which it is taken. . . . The objection that this rule of correlative rights will throw upon the court a duty impossible of performance, that of apportioning an insufficient supply of water among a large number of users, is largely conjectural." In the latter we find these words: "With regard to such land owners these cases hold that each owner of land overlying the same general underground supply of water may take such water on his own

land for any beneficial use thereon, so long as such taking works no *unreasonable injury to other land overlying such waters;* that if the natural supply is not sufficient for all such owners, each is entitled only to his *reasonable* proportion of the whole, and that each may apply to the courts to restrain an injurious and unreasonable taking by another and to have the respective rights adjudicated and the use regulated so as to prevent unnecessary injury and restrict each to his reasonable share." (Italics ours.)

These authorities set at rest the contention that the enactment is uncertain as well as the incidental assertion that the legislature has by the language of the act and its failure to define a standard of conduct with greater rigidity, attempted to confer upon the court a legislative function. From them, as well as those cases such as *Standard Oil Co. v. U. S.,* 221 U. S. 1, 55 L. Ed. 619, wherein the court announced and adopted the "rule of reason" holding that it was only those unreasonable restraints of trade which were intended to be curbed by the Sherman Anti-trust Act, we find that the courts have for a considerable period of time been accustomed in *circumstances such as are concerned in the present enactment to apply the standard and guide of reason for the adjustment of those rights the unrestricted exercise of which would injuriously affect the rights of others.* In fact, it is not a new rule in the domain of jurisprudence but a new adaptation of the old maxim: "sic utere tuo ut alienum non laedas." (Italics ours.)

Sufficient has been said to effectually dispose of the remaining argument of the petitioners and demonstrate that it is founded on a misconception of the legislative intent.

Their argument is in effect that they are not producing an undue proportion of gas when the gas production is measured by the oil from one specific well. But this is obviously not the purpose of the law, as may clearly be indicated by a single illustration. Suppose a well is drilled and comes in, as what is commonly termed "a gasser," that is, a well which produces an insignificant quantity of oil. Conceivably such a well might drain the field of its supply of gas, leaving the oil therein unrecoverable, to the great and irreparable injury of the other surface owners. We have instanced an extreme possibility, but our interpretation of the act is that it was intended to remedy a lesser, but nevertheless unreasonable, degree of waste of the same character.

Another answer to this argument of petitioners is that having determined that the court has the jurisdiction to determine what is an unreasonable waste, we cannot interfere by the writ of prohibition to deprive its judgment of effect. And we here direct attention to the determination of the respondent court that "there appears to be an unreasonable waste of natural gas in the Santa Fe Oil Field," and "that the evidence available . . . shows that the unreasonable waste of natural gas in said field may be substantially reduced and that the equities of all parties may be fairly conserved by a preliminary injunction which will limit the waste of gas by restricting the production thereof to a quantity reasonably in excess of the present outlets for beneficial use above ground, etc., etc." It does not appear from the facts presented to us that in so far as the particular case before us is concerned the court exceeded its jurisdiction in finding as we have already quoted.

It is suggested in the briefs that the legislatu.. is without authority to restrict the production of oil, and lest we be misunderstood we deem it expedient to add that the record does not indicate the temporary injunction was founded upon such a theory. Nor are we determining that the act attempts to confer upon the court any such power. Rather we are convinced that a proper construction of the enactment confines the authority within the limits of enjoining the production of gas when in excess of the reasonable proportion to the oil for the particular field involved, when not conveniently necessary for other than lifting purposes.

Writ of prohibition denied.

IRA F. THOMPSON, *J.*

We concur:

WORKS, *P. J.*

CRAIG, *J.*

FILE COPY

FILED
SEP 28 1931
CHARLES ELMORE CROPLEY
CLERK

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1931.

No. 43.

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation, and Ambassador Petroleum Company, a corporation,

Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as One of the Judges Thereof,

Appellees.

BRIEF OF APPELLEES ON MERITS.

U. S. WEBB,
Attorney General of the State of California.
JAMES S. BENNETT,
Attorney for the Director of Natural Resources of the State of California.
837 Van Nuys Bldg., Los Angeles, California,
Attorneys for Appellees.

Parker, Stone & Baird Co., Law Printers, Los Angeles.

TABLE OF CONTENTS OF BRIEF.

PAGE

I. The Opinions of the Court Below and the California Statute 3

II. Jurisdiction in This Court 5

III. Statement of the Case 6

A. The Action in Equity, the Preliminary Injunction, the Application for Writ of Prohibition, Its Denial and the Appeal 8

B. Waste of Natural Gas by Release to the Air 12

C. Waste of Natural Gas Energy Underground in the Production of Oil 20

D. Judicial Notice. Evidence Quoted. The Situation Illustrated 25

IV. Argument 39

Summary of the Argument 39

Point A. Police Power Asserted to Prevent the Unreasonable Waste of Natural Gas 40

Point B. Jurisdiction of the Appellee Equity Court Must Be Sustained as Against a Writ of Prohibition 73

Point C. Unreasonable Waste as Interpreted by the California Courts of Last Resort Meets All the Requirements of Certainty as a Primary Standard in a Statute to Regulate the Waste of Natural Gas 81

TABLE OF CASES AND AUTHORITIES CITED.

CASES.	PAGE
Abbey Land etc. Co. v. San Mateo, 167 Cal. 434, 437	80
Acme Oil & Min. Co. v. Williams, 140 Cal. 684	41, 55
Akron C. & Y. Co. v. United States, 261 U. S. 184, 201-203	87
Ambassador Pet. Co. *et al.* v. Superior Court, 208 Cal. 667	4
Baar v. Smith, 201 Cal. 87, 100	78
Bacon v. Walker, 204 U. S. 311	46, 72, 83
Bandini Petroleum Company v. Superior Court, 63 Cal. App. Dec. 1175 and 293 Pac. 899	4, 88, 92, 93
Bank of California v. Roberts, 248 U. S. 497, 500	77
Bank of Italy v. Johnson, 200 Cal. 1, 16	43, 92
Bevins v. State of Iowa, 282 U. S. 815	5, 83
Bodcaw Lumber Co. v. Goode, 160 Ark. 48	47
Burr v. McClay Rancho Water Co., 154 Cal. 428	90
Chicago, M. & St. P. R. Co. v. Minnesota, 134 U. S. 418	7
Dominguez Land Corporation v. Daugherty, 196 Cal. 468	92
Equitable Life Assurance Soc. v. Brown, 187 U. S. 308, 314	5
Euclid v. Ambler Realty Co., 272 U. S. 365	63
Ex parte Alix, 166 U. S. 136	75
Ex parte Daniels, 183 Cal. 636, 646	13
Ex parte McManus, 151 Cal. 331, 335	43, 92
Ex parte Oklahoma, 220 U. S. 198	7
Fallbrook Irr. Dist. v. Bradley, 164 U. S. 112, 163	63
Favorite v. Superior Court, 181 Cal. 261	77
Fox River Paper Co v. Railroad Commission, 274 U. S. 651, 657	46
Frohliger v. Richardson, 63 Cal. App. 209, 214	80
Frost-Johnston Lumber Co. v. Sallings Heirs, 150 La. 858	50
Gorieb v. Fox, 274 U. S. 604	63
Gosewich v. Doran, 161 Cal. 511, p. 515	76
Gundling v. Chicago, 177 U. S. 183	92
Half Moon Bay Land Co. v. Cowell, 173 Cal. 543	90
Herkness v. Irion, 278 U. S. 92	50

PAGE

Herminghaus v. Southern California Edison Company, 200 Cal. 81 66
Higgins Oil & Fuel Co. v. Guaranty Oil Co., 145 La. 233..... 50

Jacobsen v. Massachusetts, 197 U. S. 11..... 80
Jacobsen v. Superior Court, 192 Cal. 319, 325..... 79

Katz v. Walkinshaw, 141 Cal. 116..... 91
Kidwell v. General Petroleum Corp., decided June 1, 1931, 81 Cal. Dec. 906..... 77

Liberty Warehouse Co. v. Burley T. G. Coop., 276 U. S. 71..... 80
Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61.....46, 56, 82

Marrs v. City of Oxford, 32 Fed. (2d) 134, 280 U. S. 573..... 48
Milheim v. Moffat Tunnel Imp. Dist., 262 U. S. 710..... 5
Miller v. Wilson, 236 U. S. at pages 383-384..... 43
Mt. Vernon-Woodberry etc. Co. v. Alabama I. P. Co., 240 U. S. 30..... 76
Murphy v. Superior Court, 84 Cal. 592..... 76

Noble State Bank v. Haskell, 219 U. S. 104, 112..... 65
North Laramie Land Co. v. Hoffman, 268 U. S. 277-279..... 79

Ohio Oil Co. v. Indiana, 177 U. S. 190.....5, 46, 51, 57, 69, 70, 72, 84
Ohio River & W. R. Co. v. Ditty, 232 U. S. 576, 594..... 92
Omaechevarria v. Idaho, 247 U. S. 348..... 91

Pennsylvania v. West Virginia, 262 U. S. 553, 586..... 70
People v. Associated Oil Co. *et al.*, 81 Cal. Dec. 279 and 296 Pac. 273 4
People v. Associated Oil Co. *et al.*, 211 Cal. 93.....4, 7, 15, 33, 46, 49, 79, 80
People v. Globe Grain & Milling Co., 80 Cal. Dec. 625, 211 Cal. 121 .....42, 82, 92
People v. McKean, 76 Cal. App. 119..... 92
People v. Sacramento Drainage Dist., 155 Cal. 373, 381..... 63
Pierce Oil Co. v. Texas, 212 U. S. 86..... 91

Quong Ham Wah Co. v. Industrial Accident Commission, 255 U. S. 445..... 82

PAGE

Radice v. New York, 264 U. S. at pages 297-298 43
Red "C" Oil Mfg. Co. v. Board of Agriculture, 222 U. S. 379, 394 91
Reynolds v. McMan Oil and Gas Co., Tex. 11 S. W. 787 36

Schollenberger v. Pennsylvania, 171 U. S. 1 80
Shaw v. Watson, 151 La. 893 50
Smith v. Cahoon, 283 U. S. 93
Standard Oil Co. of N. J. v. United States, 221 U. S. 1, 63-64 .. 13
State v. Bevins, 230 N. W. 856 83
Stevenson v. Colgan, 91 Cal. 652 80
Swift & Company v. U. S., 276 U. S. 311 76

Texas Company v. Daugherty, 107 Tex. 226 47
Truck Owners etc. Inc. v. Superior Court, 194 Cal. 146, 155 75

United States v. Alford, 274 U. S. 264 91
United States v. Wurzbach, 280 U. S. 396 91

Virginian R. Co. v. United States, 272 U. S. 658, 665 93
Walls v. Midland Carbon Co., 254 U. S. 300 ..... 46, 59, 85

Wampler v. LeCompts, 282 U. S. 172, 174 82
Washington *ex rel.* Seattle Title Trust Co. v. Roberg, 278 U. S. 116, 120-121 63
West v. Kansas Natural Gas Co., 221 U. S. 229 58
Windsor v. McVeigh, 93 U. S. 274, 282 78
Wurts v. Hoagland, 114 U. S. 606 63

AUTHORITIES.

Act 190, Stats. La. 1910, p. 313 50
Americana, Vol. 12, Gas, p. 302 38
Americana, Vol. 21, Petroleum, p. 686 54

California Gas Conservation Laws, as Amended 4
Coke's First Institute of the Laws of England on the Plan of Sir Mathew Hale's Analysis of Littleton's Tenures, Thomas' Arrangment (Vol. I, p. 915) 44
Cal. Civil Code, Sec. 829 41
Cal. Pol. Code, Sec. 40 41

PAGE

Gas Conservation Law of 1929, Stats. 1929, pp. 927, 943..... 40

Gas-Lift Method of Flowing Oil Wells (California Practice) Bureau of Mines Bulletin 323, by H. C. Miller, 1930..... 38

"Gas, Natural," Americana, Volume 12, p. 302..... 28

Gas, Natural, International Year Book, 1930, p. 297..... 19

Geology and Oil Region of Puente Hills Region by Walter English, U. S. G. S. Bulletin 768..... 35

Indiana Statutes of 1893 and 1913..... 48

International Year Book, Vol. 12, p. 297..... 19

J. O. Lewis and W. F. McMurray in Tech. Paper 130, Bureau of Mines, 1916, pages 5-9..... 29

J. O. Lewis in Bulletin 148, Petroleum Technology 37, Bureau of Mines, 1917, pages 117-120.....29, 33

Louisiana Code, Article 505..... 49

McGee and Phinney, "*The Natural Gas Fields of Indiana*," Eleventh Annual Report United States Geological Survey, 1889-90, pp. 579, 605..... 54

H. C. Miller, "Function of Natural Gas in the Production of Oil," U. S. Bureau of Mines.....33-34

Orton, Edward, "The Trenton Limestone as a Source of Petroleum and Natural Gas in Ohio and Indiana," Eighth Annual Report U. S. G. S., p. 475.....31-32

Pet. Tech. 37, p. 99. Bulletin 148, Bureau of Mines..... 33

Report Conservation Committee A. P. I., Bulletin 3, Jan. 12, 1928, as quoted in "Increasing the Recovery of Petroleum," Osgood, Vol. 2, pp. 818-19..... 28

Section 1094, Code of Civil Procedure, Stats. Code Amendments 1873-4, p. 345..... 75

Section 1102, Code of Civil Procedure, Stats. 1919, p. 2291....74, 75

"Soil," 25 Americana 228, and Reports of F. H. King in the United States Geological Survey Bulletin..... 38

Thomas' arrangement of Lord Coke's First Institute of the Laws of England on the plan of Sir Mathew Hale's Analysis of Littleton's Tenures (Vol. I, p. 915)..... 44

Webster's New International Dictionary..... 13

TABLE OF CONTENTS OF APPENDIX FILED HEREWITH.

PAGE

Day and Hill Report of 1912 4

Beale and Lewis Report of 1924 5

Swiggart and Bopp Report in 1924 10

Hopkins and Bacus Report in 1927 11

Miller Report in 1929 12

Methods for Increasing the Recovery from Oil Sands, Bureau of Mines Bulletin 148, Pet. Tech. 37 by J. O. Lewis, 1917 34

Gas Lift Methods of Flowing Oil Wells (California Practice) Bureau of Mines Bulletin 323, by H. C. Miller, 1930 38

Origin of the Rich Pressure of Natural Gas in the Trenton Limestone of Ohio and Indiana, by Edward Orton 51

Summary of Ernest K. Parks of "Analytical Principles of the Production of Oil and Gas and Water from Wells", by Stanley C. Herold, 1928 59

Groundwater Hydrology. Baker and Conkling, "Water Supply and Utilization", 1930 75

Crooked Holes, by Howard. June Chapter Annual Report of 1929, State Oil and Gas Supervisor 83

Ideal Cross Section Planes Along the Lines Indicated on Map Exhibit "A" Through the Santa Fe Springs Oil Field 123

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1931.

No. 43.

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation, and Ambassador Petroleum Company, a corporation,

Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as One of the Judges Thereof,

Appellees.

BRIEF OF APPELLEES ON MERITS.

I.

THE OPINIONS OF THE COURTS BELOW AND THE CALIFORNIA STATUTE.

Bandini Petroleum Company v. Superior Court of the State of California, decided November 29th, 1930, Civil #7292, Second Appellate District, Division Two, State

NOTE: References hereafter made—"R" to the pages of the printed Record herein; "Supp." to Supplement to Brief of Appellees on Motion to Dismiss, Appeal or Affirm Judgment, herein, and "App'x." to the Appendix to this Brief filed under separate cover.

of California, not yet officially reported, but will appear in 109 Cal. App. Rep. ——. A copy of the opinion is printed in the Record, beginning with page 200, and again printed as an appendix to "Statement of Appellees as to Jurisdiction on Appeal" at pages 1 to 24. The opinion is unofficially reported in 63 Cal. App. Dec. 1175 and 293 Pac. 899.

People v. Associated Oil Co. et al., 211 Cal. 93, on application of Twin Bell Syndicate, *et al.*, for a Writ of Supersedeas from the Supreme Court of California, Dec. 3, 1930, not yet officially reported. A copy of the opinion is printed as Appendix B, beginning at page 19, in "Supplement to Brief of Appellees on Motion to Dismiss Appeal or Affirm Judgment" herein. The opinion is unofficially reported in 80 Cal. Dec. 607 and 294 Pac. 717.

People v. Associated Oil Co., et al., on the appeal of Twin Bell Syndicate and others from the preliminary injunction, decided March 26, 1931, not yet officially reported. The opinion is unofficially reported in 81 Cal. Dec. 279 and 296 Pac. 273. A copy of the opinion is printed as Appendix "C," beginning at page 45 of the Supplement above mentioned. *Ambassador Pet. Co. et al., v. Superior Court*, 208 Cal. 667 construing the statute in respect to parties and pleading.

California Gas Conservation Laws, being chapter 718, Statutes 1915, page 1410; as amended by chapter 759 Statutes of 1917, page 1598; as amended by chapter 536 statutes of 1919, page 1165; as amended by chapter 912 statutes of 1921, page 1724; as amended by chapter 535 statutes of 1929, page 925. Substantially all the pertinent provisions are contained in the statute of 1929. A copy of all the provisions mentioned by appellants on this appeal are printed as Appendix "A" to Supplement of Appellees' Brief, filed on motion beginning with page 3.

II.
JURISDICTION OF THIS COURT.

Technical jurisdiction exists in this court to review the decision of the California court appealed from on two questions, *first*, the power of the state to prohibit the waste of natural gas, and *second*, the sufficiency of the standard of unreasonable waste of natural gas to meet the requirements of "due process of law." If these two questions have been so explicitly decided by this court as to foreclose further argument, then this court should grant appellees' motion to dismiss the appeal or affirm the judgment below for lack of a sufficient Federal question, *Equitable Life Assurance Soc. v. Brown*, 187 U. S. 308, 314; *Bevins v. State of Iowa*, 282 U. S. 815. The motion of appellees to dismiss the appeal or affirm the judgment below has been separately briefed. The motion to dismiss will be submitted on the authorities contained in that brief and in the statement of appellees as to jurisdiction heretofore filed herein, without further citation of authorities. The alternative motion to affirm the judgment below is again urged as the proper disposition of this appeal, *Milheim v. Moffat Tunnel Imp. Dist.*, 262 U. S. 710. It is submitted that the whole case on the merits is covered by the opinion of this court in *Ohio Oil Co. v. Indiana*, 177 U. S. 190.

III.
STATEMENT OF THE CASE.

The statement of the case naturally divides itself into two parts: *first,* the nature of the original proceeding, its progress to this court, the position of the respective parties to the action pending in the trial court, the parties to the application for the Writ of Prohibition and the position of the parties on this appeal; and *second,* the nature of the property right subjected to regulation by the California statute, the impinging rights of neighboring owners over the same gas structure, the public interest in the regulation of production, and the appropriateness of the statutory regulations to the property right in natural gas and oil.

When the appellee equity court made its temporary injunctive order in the action against appellants, and other operators in the field to prevent the unreasonable waste of natural gas pending the trial on the merits, there were three remedies open to appellants if they considered themselves aggrieved:

> *First,* to apply to that court for a modification of the preliminary injunction, the power to make such modifications having been expressly reserved in the preliminary injunction;
>
> *Second,* to appeal the case to the Supreme Court of California and apply to that court for a Writ of Supersedeas requiring the appellee equity court to withhold enforcement of the preliminary injunction until the matter could be heard in the State Supreme Court; and
>
> *Third,* to challenge the jurisdiction of the appellee equity court on the ground that the statute is wholly unconstitutional.

The co-defendants of appellants, Twin Bell Syndicate, *et al.*, elected to appeal from the injunction and apply for a stay. Their application for a supersedeas was denied [*People v. Associated Oil Co.*, decided Dec. 3, 1930, Supp. 19, *supra*]. The preliminary injunction was sustained on appeal by a decision of the same court March 26, 1931, [*People v. Associated Oil Co., supra*, Supp. 45.] Appellants elected to challenge the jurisdiction of the equity court *to make any order of injunction* on the ground that the statute of the State of California necessarily infringed their fundamental rights under the Constitution of the United States. The attack by application for a Writ of Prohibition is an assertion that under any state of facts the equity court was without jurisdiction to make any injunction restraining the waste of natural gas. Under unusual circumstances this court has sent a cause back to the state court with directions to make its order conform to the opinion of this court; for an example see *Chicago, M. & St. P. R. Co. v. Minnesota*, 134 U. S. 418. If the Writ of Prohibition is denied by affirmation of the judgment below, these appellants have preserved to them their day in court both at the trial on the merits and by application to modify the preliminary injunction now stayed by supersedeas in this court and by appeal from any orders hereafter made. Under these circumstances it is the rule of this court that the complaining party must avail itself of the statutory remedies. (*Ex parte* Oklahoma, 220 U. S. 198.)

The *second* part of the statement of facts has to do with the peculiar nature of oil and gas commingled in strata under great pressure far beneath the surface of the earth, the manner of its production and utilization under the

conditions existing in the State of California, and the property right of each landowner to acquire title to the oil and gas in the earth by reducing them to possession at the surface.

III-A.

The Action in Equity, the Preliminary Injunction, the Application for a Writ of Prohibition, Its Denial and the Appeal.

The appellants here were the petitioners for the Writ of Prohibition in the California District Court of Appeal and the appellees here are the Judge and the court of general equity jurisdiction in which was and is pending the action to restrain the unreasonable waste of natural gas under the statutes of the State of California above mentioned. The District Court of Appeal of California, in its opinion denying appellants' application for a Writ of Prohibition, said:

> "This is an original prohibition proceeding. The petitioners seek to prevent the respondent court from enforcing a preliminary injunction and order modifying the same and also to check any further order or proceeding against them in an action pending in the respondent court entitled People of the State of California on relation of Fred G. Stevenot, Director of Natural Resources of the State of California v. Associated Oil Company, *et al.*, which action was brought for the purpose of enjoining all of the defendants therein named from unreasonably wasting natural gas from their wells in the Santa Fe Springs Oil Field. On March 19, 1930, after hearing the parties to the action, the court granted a temporary injunction limiting and defining the amount of gas which the defendants would be allowed to permit to escape into the

air from their wells in the field mentioned. On March 28, 1930, the court made another order somewhat relaxing the terms of the injunction *pendente lite*. It is asserted by petitioners that they have been irreparably injured and damaged by attempting to curtail the production of natural gas; that there is no market for a large part thereof, and that if they are to be allowed, as they claim it is their right, to employ the gas as a lifting power to raise the oil from below the surface, they must of necessity permit a portion thereof to escape into the air; that prior to the temporary injunction they were producing 19,554 barrels of oil per day, but that operating most efficiently under the amount of gas allowed to be used by the modified order they cannot possibly produce more than 10,211 barrels per day." [R. pp. 200-201.]

The preliminary injunction of the appellee Superior Court recited:

"The court having read the verified complaint and the affidavits in support of the relief prayed for in said complaint, and having read the verified answers of defendants on file herein and the affidavits filed on behalf of certain defendants, and having taken testimony, both oral and documentary, in open court and having heard the attorney for plaintiffs and the attorneys for the defendants appearing herein, the court finds that no sufficient cause has been shown why a preliminary injunction should not be issued as prayed for in said complaint, and as hereinafter provided, and the court having considered the law and the premises *finds* that there appears to be an unreasonable waste of natural gas in the Santa Fe Springs Oil Field; that to preserve the subject matter of the action to abide the decree of the court at the conclusion of the trial a preliminary injunction is

necessary at this time; that the evidence available to the court at this time shows that the unreasonable waste of natural gas in said field may be substantially reduced and that the equities of all parties may be fairly conserved by a preliminary injunction which will limit the waste of gas by restricting the production thereof to a quantity reasonably in excess of the present outlets for beneficial use above ground, require the extraction of gasoline from the gas produced in the field; that accordingly for the purpose of this order, the total gas outlets for all uses with a reasonable tolerance to take care of fluctuating demands and the necessary waste is taken at approximately two hundred eight-five million (285,000,000) cubic feet of gas each day, and the estimated potential production oil is taken at two hundred thirty-seven thousand five hundred seventy-six (237,576) (W. H.) barrels each day distributed among leases and other operating property units as shown in the schedule hereafter set out; and that sufficient cause has been shown for the extraordinary relief of a preliminary injunction pending the trial of the action on the merits, and the entry of a final judgment herein." [R. pp. 180-181.]

It was then provided that the defendants be enjoined until the further order of the court:

"1. From blowing, releasing or permitting any natural gas to escape into the air from any well or wells in the Santa Fe Springs Oil Field before the removal of the gasoline from such natural gas.

"2. From operating any well producing natural gas in the Santa Fe Springs Oil Field except while exercising a high degree of care in the selection and adjustments of appliances and in the use thereof for

the purpose of keeping each producing well in its 'optimum gas-oil ratio'—the term 'optimum gas-oil ratio' being defined as the smallest number of cubic feet of gas which can be produced with each barrel of oil from the same well at the same time.

"3. From producing more net formation gas on the average day of each seven (7) day period from any lease or other property unit than is set forth in the 'Allowed Gas Production' column in the schedule following." [R. pp. 181-182.]

The allowed gas production each average day was by the order of March 28, 1930, increased to 300,000,000 cubic feet. [R. 187 and 193.]

The unreasonable waste of natural gas by appellants declared unlawful by the statute and restrained by the preliminary injunction of the appellee superior court has two aspects.

Natural gas serves two great purposes, and, because it cannot be stored in quantities for future use above ground, in large measure it must be used as produced, or stored in natural reservoirs underground, or wasted. The use in producing the oil from the underground strata and the use in creating heat or other industrial energy above ground must be closely correlated in point of time. It will be reasonable to allow a greater quantity of gas to be wasted to the air where there is no waste of gas energy in producing oil, than where there is large waste of the gas energy in producing the oil.

III-B.

Appellants Were Contributing Between Forty and Sixty Per Cent of Their Production to the Prohibited Unreasonable Waste of Natural Gas by Releasing It to the Air Without Use of Its Heat and Energy Units.

There is no advantage in discussion until the terms to be used are agreed upon. "Waste" is a relative term with two extremes of meaning.

The California courts had to derive the legislative intent from the language used and facts within their judicial knowledge. This court has the advantage of the construction of the California courts in ascertaining the meaning to be attributed to the language of the California Legislature. The language used by the legislature excluded all but one dictionary meaning of the word "waste." When energy is converted into physical substance, or physical substance is converted into energy, there is always a margin of loss which may be theoretically measured by converting back. This loss is waste, but it is not unreasonable waste. There is also the definition of "waste" as "needless destruction or useless consumption." Under this definition of the term "waste," no characterizing adjective is necessary as it is already included in the definition. This is the "unrestrained license to waste" (177 U. S. 201) and to "protect from undue destruction" and the "extravagant or wasteful or disproportionate use of natural gas," (254 U. S. 314 aud 323). Had the California Legislature seen fit to prohibit all waste of gas after the removal of the gasoline therefrom, the courts would either have had to interpolate the word "unreasonable" before the word "waste" in order to give the statute an

operative meaning, or else to have declared the statute void as inoperative. This was the situation which confronted this court in construing the Sherman Anti-Trust Act in *Standard Oil Co. of N. J. v. United States,* 221 U. S. 1, 63-64, and subsequent cases. Referring to this "rule of reason" declared by this court in the last cited case, the Supreme Court of California, in *Ex parte Daniels,* 183 Cal. 636, 646, said:

> "It is scarcely to be assumed that this court would read into a statute by construction a provision which, had it been included therein at the time of its enactment, would have rendered the statute void and unconditional, because of the uncertainty involved in the use of the very term read into it by the court, namely 'reason'."

We find these two definitions of "waste" in the dictionaries in common use, one definition including within itself the characterizing adjective "needless," or "useless," or "unreasonable," and the other definition omitting the characterizing adjective. To make the meaning definite and certain, each user must indicate by appropriate language which of the dictionary meanings he intends. This the California Legislature did by the use of the word "unreasonable" to characterize the prohibited waste. Webster's New International Dictionary in defining "waste" says:

> "* * * a squandering; needless destruction; useless consumption or expenditure; loss without equivalent gain; * * *."

Here the definition itself includes the equivalent of the characterizing adjective "unreasonable." The dictionary definition continues:

"* * * gradual loss or decrease by use, wear or decay."

To exclude this definition as not intended, the user of the word "waste" must use a qualifying adjective. The legislature by the use of the characterizing adjective "unreasonable" made it clear that the waste prohibited and declared unlawful was the "loss without equivalent gain," and that waste in the sense of "gradual loss or decrease by use, wear or decay," or "loss by necessary destruction" was permitted.

This was no new problem for the Supreme Court of California, as there is a long line of well considered opinions in that court making the same distinction between "reasonable use" and "unreasonable waste" in the law of waters, to which we will refer when we discuss the analogies between the law of gas and oil and the law of waters. The matter is fully covered in the opinion of the District Court of Appeal rendered on the order appealed from.

On the hearing before the appellee court there was satisfactory evidence that during the year 1928 over seventy-seven billion (77,000,000,000) cubic feet of natural gas were wasted into the air from the sub-surface oil and gas zones in the State of California derived from the operation of oil wells. [Affidavit of Brown, R. p. 56; Supp. p. 20.] The natural gas so wasted into the air in 1928 was the energy equivalent of three million eight hundred fifty thousand (3,850,000) tons of good coal; twenty thousand (20,000) cubic feet of natural gas being taken as the equivalent of a ton of good coal. [Supp. pp. 84-85.] Many domestic consumers, industrial plants and

public buildings within the vicinity of Santa Fe Springs Oil Field depended upon a continuous supply of natural gas for heat and power and these uses, large at the time, were being extended. At the rate of discharge to the air existing at the time that the complaint was filed, in September, 1929, it was estimated by the witness Brown, oil and gas administrator for the Railroad Commission, that the Santa Fe Springs Oil Field would be depleted of natural gas within three years [R. pp. 56, 58]. This opinion is being confirmed. [*People v. Associated Oil Co., supra,* Supp. 48.] It was this evil of a blow to the air of an energy-producing substance which cannot be replaced in a commonwealth entirely without coal, that led the Legislature of California to recite that the facts of this waste constituted the necessity for the urgency measure as follows:

> "At the present time in the oil and gas producing fields within the State of California there is now being blown into the air and wasted daily on the average of approximately five million cubic feet of gas. New fields producing heavily of natural gas are being opened up which will tend to add to the amount of natural gas being blown into the air and wasted and lost." [Stats. 1929, p. 943, Supp. 18.]

By the blow to the air of five hundred million (500,000,000) cubic feet of gas per day [Complaint, Ex. "AA" following R. p. 36] there was a waste of energy in the Santa Fe Springs Oil Field, equivalent in energy to twenty-five thousand (25,000) tons of coal a day at the time the action was commenced. See opinion of the Supreme Court of California [Supp. p. 20]. For the month of July, 1929, in the Santa Fe Springs Oil Field the gas production was approximately eighteen billion seven hundred million (18,-

700,000,000) cubic feet, the use five billion four hundred million (5,400,000,000) feet, and the waste by blow to the air thirteen billion three hundred million (13,300,000,000) cubic feet [R. p. 58]. It is true that there was no market for this excess quantity of gas at the time, but, with a spread of production over three years instead of one, an adequate market was available. The opinion of the witness Brown that the gas supply from Santa Fe Springs would be depleted within three years was verified. The Supreme Court of California on the appeal from this very preliminary injunction by other parties, was able to say:

> "During the month of March, 1930, when the original injunctive order was issued, the daily average production of gas in the entire Santa Fe Springs Oil Field was five hundred sixty-five million seven hundred five (565,000,705) cubic feet per day. The injunctive order fixed the allowable daily production at three hundred thirty-four million (334,000,000) cubic feet per day. Taking into consideration and eliminating the amount of gas put to beneficial use, the court determined that any additional gas blown to the air in excess of one hundred million (100,000,000) cubic feet per day was 'unreasonable waste.' [Supp. 47.] In January of this year (1931) the daily average of production of gas in the entire field was reduced to one hundred seventy-seven million two hundred fifty thousand (177,250,000) cubic feet. This reduction was due wholly to the decrease in gas pressure in the various sands of the field. The production of oil in the whole field was necessarily reduced proportionately. *It therefore appears that the very thing that the state was endeavoring to prevent, namely, the improvident and wasteful use of natural gas, has been frustrated by unregulated operations in the*

field or by operations continued in spite of attempted regulation, with the result that the further recovery of oil in the discovered zones in this field has been unduly reduced by the heretofore wasteful process, and that such further recovery must depend on artificial gas repressuring or putting the wells on pumps." [Opinion California Supreme Court, Supp. 48.]

This preliminary injunction curtailed production in the field from five hundred sixty-five million seven hundred fifty thousand (565,750,000) cubic feet of gas each day to three hundred thirty-four million (334,000,000) cubic feet each average day. See Brown affidavit [R. 58] and injunction [R. 187-193]. The injunction curtailed appellants gas production from fifty-seven million one hundred twenty thousand (57,120,000) cubic feet a day to twenty-eight million one hundred sixty thousand (28,160,000) cubic feet a day. The peak use remaining constant at 220,000,000 cubic feet, this order would reduce the blow to air from 335,000,000 cubic feet to 115,000,000 cubic feet, amounting to a reduction in blow of 220,000,000 cubic feet each average day below that existing without the order. See Charts affidavit, Brown. [R. 60-61.]

The appellants were admittedly blowing to the air between 40% and 60% of their production, amounting to twenty-two million eight hundred forty-eight thousand (22,848,000) cubic feet a day [R. 116 and Appellants' Brief in Opposition to Motion to Dismiss, Appeal p. 14.] This blow of natural gas to the air by appellants, taken at 40% [R. p. 116], was the equivalent of one thousand one hundred forty-four (1,144) tons of good coal a day. [Supp. p. 85.] It is the basic contention of appellants that there was no market or use for the excess gas being

produced, from which it follows that any decrease in the production of natural gas in this field resulted in an equivalent reduction of the gas blown to the air. This cut in gas production required by the order if observed would have resulted in a cut of approximately fifty (50%) per centum in the oil production of appellants. This reduction was the general average throughout the field. The order also operated to diminish the underground waste of natural gas. Each operator being allowed to produce a limited quantity of gas in its own interest would utilize its allowance of gas to produce the largest quantity of oil. This would, and with few exceptions did, result in each operator keeping on production its lowest "gas-oil ratio" wells and closing in its wasteful "gassers." That these appellants could comply with the order of the equity court is shown by their own report. [R. p. 11.] Bandini Petroleum Company by beaming back all the wells or taking one more well in the deep sands off production (as shown by this report) could have complied with the order. The other appellants were in substantial compliance, *but they desired to reopen their wells and again increase production.* [R. pp. 11 and 16.]

When in 1912 the natural gas industry commenced to play a leading part in the production of heat and mechanical energy for use throughout the country, the Department of the Interior published a report recognizing that "enormous quantities are wasted annually, quantities too great even to be estimated, and it is with the greatest difficulty that interest can be aroused to the importance of conserving this valuable fuel and preventing the exhaustion of the fields." The continuing effort had its effect. In the

Appendix filed with this Brief under separate cover we quote from some of the reports of which the California Supreme Court took judicial notice. The immediate occasion for action by the California Legislature grew out of Report III of the Federal Oil Conservation Board to the President of the United States, under date of February 25, 1929, containing the report of its committee of nine of date January 28, 1928. [See p. 63 of the Supp. to Brief of Appellees on Motion to Dismiss Appeal or Affirm Judgment.] This report brought home to the California Legislature that the remedy for the waste of natural gas taking place in a state entirely without coal was within its police power, and, if permitted to continue without legislative action, the resulting damage to the state would be chargeable to the legislature as well as to the uneconomic activities of the producing companies. The duty seemed clear, and the undisputed finding that five hundred million (500,000,000) cubic feet of natural gas a day was being blown to the air unused and that this waste was increasing was recited to bring the act within the emergency powers of the legislature.

The increasing demand for natural gas in domestic use required that the supply be conserved. The reports for the year 1929 showed that California had the largest number, 1,239,000, domestic users of natural gas in any state. (*Gas,* Natural, International Year Book, 1930, p. 297.) For progressive increase in use of natural gas for domestic purposes see Supp. pp. 93, 95, 97.

III-C.

Unreasonable Waste of Natural Gas in the Production of Oil.

At 3450, at 4100, at 4900, at 5700, at 6200, at 7200 and at 8000 feet, respectively, below the land surface of Santa Fe Springs Oil Field, there is a zone of sand strata filled with oil and gas under high pressure [Complaint at R. 24; affidavit of Bush, state oil and gas supervisor, at R. 42; affidavit of Huguenin at R. 47]. The land surface within the oil field is divided into not less than 1145 parcels owned of record by more than 110 owners, many of the parcels being rectangles, less than 75 feet by 100 feet, and more than 41 operators have drilled from the surface into the producing zones mentioned [Complaint R. p. 25, affidavit of Huguenin at R. p. 47]. The pressure in each oil and gas zone was created and is maintained by the weight of edgewater in the zone compressing the gas content. A production zone is made up of the oil and gas producing strata between water bearing strata required to be cemented off at the well. [R. 42.] These zones are arched or domed and the oil with the gas is caught and held in the convex curve or anticline of the dome. [R. 42.] Over eighty-five (85%) per cent of the gas confined in the oil-bearing sand is methane and ethane, which do not liquify at any temperatures and pressures occurring in the zones. (Miller report, 1928, pp. 27 and 191.) Some portion of the lighter oil may vaporize, but it does not change into gas. The gas in the oil sands is greatly compressed and closely associated with globules of oil between the particles of sand throughout the zone. There is a definite quantity of oil and a definite quantity of gas in the zone before it is opened by a well. This original fixed

quantity of gas in cubic feet computed to atmospheric pressure divided by this original fixed quantity of oil in barrels of forty-two liquid gallons each gives the original or formation "gas-oil ratio." If a more accurate "energy gas-oil ratio" is desired the gases which liquefy at the temperatures and pressure must be subtracted from the total gas, and the barrelage of oil increased to the total of liquid raised by the compressed methane and ethane gases. There is a general uniformity of pressure and homogeneity of content throughout the sands of each zone. Where the vertical depth of the sands within the zone is great there will be some variation in the porosity and permiability of the sand, and the oil will be heavier at the bottom, gradually becoming lighter until in some places a "gas cap" will be found at the top of the zone. When a well is opened into a zone of oil bearing strata the pressure of the expanding gas forces the mingled fluid of oil and gas toward and out of the well, creating an inverted cone of lowered pressure about the well. As the fluid comes from the well its former place in the sands is filled by oil and gas pressing in from ever greater distances to equalize pressure in this cone at the well. At the same time, but more slowly than the gas, the edgewater advances to restore the zone pressure and in compensating measure decrease the zone space by contracting at the outer boundaries the cubical content of the oil and gas space in the zone. If the fluid oil and gas comes out of the well at or near the original formation gas-oil ratio a large part of the oil in the zone will be recovered. If the well is opened into or near the "gas cap" at the top of the dome the proportion of gas to oil that comes out is usually large and we have a high production gas-oil ratio with a low re-

covery of oil. This gas-oil ratio usually can be decreased by lowering the intake of the flow string deeper into the sands where the heavier oil is found, and also by pressing the gas back through the depleted production cone at the well. This is illustrated by figures 33 and 34 from Bureau of Mines, Pulletin 323, pp. 84 and 86. [See App'x. pp. 43-47, and affidavit of Gaylord, R. 51-52.] The limit of beneficial results from this back pressure is obtained just before the original zone pressure is reached. The sand in the zone offers a greater impediment to the flow of oil toward the well than it does to the flow of gas, and the oil deprived of its solution gas becomes more viscous. This in turn results in the gas leaving the oil with which it is associated and "slipping up the structure" toward the intake of the well, carrying with it progressively smaller and smaller quantities of oil as the distance of the source of supply from the well becomes greater and greater. As the sands in the immediate vicinity of the well become depleted of their oil and gas and the gas comes to the well from greater distances bringing an ever decreasing proportion of oil, we have progressively a higher and higher production "gas-oil ratio." To some extent this progress will be delayed by holding back the production of the well by the gas back pressure above mentioned. Unless the sands are very open and the edgewater drive unusually heavy after the flush production even with the best adjusted back pressure there is a steadily increasing gas-oil ratio until the well, if continued on production, becomes a "gasser." If taken off production it may be restored when the water drive has replenished the depression cone with oil. The oil deprived of its gas becomes more viscous, adheres to the sand in larger proportions, the

edgewater "fingers" in, cutting off bodies of oil sand from contact with the main body, all of which contribute in reducing the recoverable oil. [See Miller, "Function of Natural Gas in Production of Oil," quoted in App'x. filed with this Brief beginning at p. 12.]

For every one thousand (1000) cubic feet of gas produced with a barrel of oil above the first thousand (1000) cubic feet safely above the formation gas-oil ratio, [Miller Gas Lift Method, California Practice, Bureau of Mines, Bulletin 323, App'x. pp. 37-38] from a zone too deep to be reached by pumps, there is left in the ground a barrel of oil, and the ultimate recovery of oil is reduced accordingly. As production continues the hydraulic head of edgewater will engulf the flank wells and drive the oil up the structure toward the top of the dome. Until the edgewater advances through the depleted sands, makes up its loss of head due to absorption and begins its drive on the oil production. Every known oil and gas field in California (not on pump) produces by gas pressure and that pressure is maintained by a head of edgewater. Where the field is not over drilled and adequate back pressure is maintained in the fullness of time additional oil will be brought to the wells under a drive of edgewater toward the well. (There is one small well in Santa Barbara County which may produce by contraction of the geological fold.) If the high gas-oil ratio wells at the dome are closed in before they become "gassers" and restored to production on "gas lift" or placed on pump, the highest ultimate recovery of oil will be had. As the water advances beyond the flank wells driving the fluid oil and gas up the structure, the wells on the top of the dome can be

restored to production, provided the gas has been held back in the oil. In this manner the production rights in all parts of the field will be equitably adjusted. In zones near the land surface the head of edgewater will drive some of the oil deprived of its gas within reach of the pumps, but the increased viscosity will decrease the recoverable oil. Where the dome of the oil and gas zone is far below the land surface the pumps will not be able to reach the oil at the top of the dome whither it has been driven by the edgewater head. Deprived of its gas, this oil cannot be produced, is lost and wasted. [R. 139.] This was the situation in the various producing zones in the Santa Fe Springs Oil Field. Pressure of formation natural gas is the only available energy which will produce the oil at the surface from deep structures such as these appellants were and are producing from. From zones near the land surface the oil deprived of its gas may be produced by pumps, but gas pressure alone will produce the oil from the deep zones. The proportion of gas in solution varies with the pressure and the pressure with the depth. The pressure is approximately the weight of, allowing 42 pounds to 100 feet of a column of water, at 6500 feet the pressure would be about 3000 pounds [Supp. pp. 83-84]. The gas in solution is approximately 0.2 cu. ft. to each pound of pressure and at a depth of 6500 ft. would be about 600 cubic feet to a barrel of oil. [Miller Tech. 323, p. 22, App'x. p. 39.]

Every increase in production gas-oil ratio above the formation gas-oil ratio decreases proportionately the recovery of oil. This is the underground waste of gas complained of. Where gas which has not performed its duty in producing oil is released to the air there is a double waste.

III-D.

Judicial Notice. Evidence Quoted. The Situation Illustrated.

The pleadings and motion affidavits of plaintiff were incorporated as a part of appellants' papers on their application for the Writ of Prohibition. [R. p. 2.]

The affidavits submitted fully sustain the recitals of the appellee court. The witness Huguenin testified:

> "That attached to the complaint is map marked Exhibit "A" hereby made a part of this affidavit and on said Exhibit "A" is located each of said parcels and each of said wells. That in the sands of the Lower Buckbee Zone, the Upper O'Connell Zone, the Lower McConnell Zone, the Upper Clark Zone, the Lower or Second Clark Zone and the Hathaway or Third Clark Zone are large quantities of natural gas under high pressure, which gas causes the oil and gas to discharge with great force at the surface through and out of the wells from the sands in the said zone.
>
> That there is now being wasted, blown, released and allowed to escape into the air by the acts, omissions, sufferance or insistence of the defendants an aggregate of more than four hundred million cubic feet of natural gas (after the removal of the gasoline therefrom) each day of twenty-four hours from the said subsurface zones of the Santa Fe Springs Oil Field herein referred to, which discharge of natural gas has continued for more than thirty days next last past. . . . .
>
> That the gas so being blow, released and allowed to escape into the atmosphere can be saved and conserved by defendant operators in said Santa Fe Springs Oil Field by confining said gas in the zones of said field.

That a cubic foot of gas as referred to in this affidavit is measured at a temperature of 60°F. and a pressure of 14.733 pounds per square inch, and a barrel of oil as referred to herein contains 42 liquid gallons.

That in addition to the value of the gas unreasonably wasted from said wells, as aforesaid, the recoverable supply of oil and gas in the zones of said Santa Fe Springs Oil Field is greatly diminished by permitting said wells to flow freely without sufficient "back pressure" at the surface. That said back pressure is necessary throughout each of the said zones in the said Santa Fe Springs Oil Field in order to retard the rapid encroachment of edgewater into each said zone, and the consequent displacement of the gas therein contained." [Affidavit of Huguenin, R. pp. 47-48.]

The witness Gaylord testified:

"The flow of oil through an oil zone well is caused chiefly by natural gas which seeks the well as a point of diminishing pressure. The ultimate recovery of oil from oil sand depends largely upon the quantity of gas available in the sand for carrying oil to the wells. The ratio of the original quantity of gas to the oil in different oil and gas sands varies greatly, but because of the important part played by natural gas in the recovery of oil, the conservation of natural gas is of the utmost importance to every oil operator and to the community dependent upon a continued supply of oil or gas or both.

In two adjacent wells producing from the same zone the quantity of gas produced per barrel is to a large extent a measure of the relative efficiency in oil recovery of these two wells. If one of these wells produces a barrel of oil with five hundred (500)

cubic feet of natural gas and the [fol. 81] other a barrel of oil with one thousand (1000) cubic feet of gas, the first well is believed to be much more efficient than the second well, and while it cannot be assumed in the light of present information that a well will ultimately produce twice as much oil if it can be controlled to produce at the rate of five hundred (500) cubic feet instead of one thousand (1000) cubic feet of gas per barrel of oil, nevertheless, it can be stated that the ultimate production of a well will be greatly increased if the quantity of gas discharged from the well can be delayed." . . .

"That each and every withdrawal of more gas than is dissolved in the oil by one of such operators through a well entering the sand of any one of said zones reduces the supply available to each other such operator of a well into said zone and increases the difficulty of each operator in obtaining oil and gas through a well drilled into the said zone from the surface of the land owned by him or through which he has a right to produce oil and gas. That each and every such withdrawal of gas does and will reduce the gas pressure in the said zone sand throughout the whole of said zone as it extends in, under and through said Santa Fe Springs Field." [Affidavit of E. G. Gaylord, R. pp. 50, 52.]

The affidavit of Bush is to the same effect. [R. 43.]

The trend of development and application of methods of increasing recovery are detailed in the report of the American Petroleum Institute Committee of Eleven, which classifies the application and developments as follows:

"1. To conserve as much as is possible in the formation, *i. e.*, to keep the ratio of gas to oil produced as low as possible.

"2. To return dry gas from compression and absorption plants back to the oil-gas producing stratum for the purpose of conservation and increased production.

"3. To locate wells with respect to structure so that the gas-oil ratio may be kept as low as possible." (Report Conservation Committee A. P. I., Bulletin 3, Jan. 12, 1928, as quoted in "Increasing the Recovery of Petroleum", Osgood, Vol. 2, pp. 818-19.)

From the article entitled, "Gas, Natural," Americana volume 12, p. 302, *et seq.*, edition, appearing in Supplement, at page 83, we quote the following:

"In composition, various samples of natural gas differ very considerably, but its principal component is methane, or marsh gas (CH_4), ranging from 81 per cent for Pennsylvania and West Virginia gas to 98 per cent in some of the gas produced in Oklahoma. * * *

"Gas, because of its natural qualities, has a tendency to make its way for long distances wherever there are hollows in which the pressure is less than its own, and only collects in considerable quantities where there is an impermeable stratum of clay or rock to prevent further movement. In these hollows it accumulates under varying pressures depending upon their depth below the surface, the pressure having a close relation to the weight per square inch of a column of water of the same height; from which it is argued that the pressure found in natural gas reservoirs is derived from water forcing the gas out of a lower level. * * *

"The standard used in measuring fuel values is called the British thermal unit, written B. T. U., and is the amount of heat necessary to raise the temperature of one pound of pure water 1° F. at or near 39° F., which is the temperature of the maximum density of water. As tested by this standard various samples of natural gas showed heat values ranging from 740 to 1,312 B. T. U. per cubic foot. * * *

"About 20,000 cubic feet of natural gas will equal one ton of good bituminous or anthracite coal. * * *

"The heat value stored in natural gas is greater than that caused by any artificial combination of carbon and hydrogen, and it is a perfect fuel, as it issues from its original rock-sealed reservoirs. No preparation is necessary for its combustion, and no residue is left. It is not affected by ordinary temperature and it is easily distributed by pipes to points of consumption. It is a most economical source of light and power, and an ideal household fuel."

The earliest reports to give attention to the underground waste of gas in the production of oil were by J. O. Lewis and W. F. McMurray in Tech. Paper 130, Bureau of Mines, 1916, pages 5-9; and by J. O. Lewis in Bulletin 148, Petroleum Technology 37, Bureau of Mines, 1917, pages 117-120. In Bulletin 148 above cited the author says:

"There is a definite and limited amount of natural energy associated with the oil in each field, and largely upon how effectively that energy is utilized to expel the oil from the sand will depend what proportion of the oil in the sand may be recovered, for evidently *the exhaustion of a well is caused more by the exhaustion of the natural expulsive forces than by the depletion of the supply of oil.* If the natural gas associated with the oil is permitted to escape unrestricted and without performing the greatest amount of work possible, the producer is lessening the quantity of oil that may be obtained by natural means. Every foot of gas produced wastefully may be considered to represent a quantity of oil that should have been brought to the surface by using the gas effectively. It appears logical to gage the efficiency of production methods by the relative volumes of gas produced with the oil at the same well. If, for example, a change in method reduced the volume of gas produced with each barrel of oil from 2,000 to 1,000 cubic feet, much more oil could be

recovered eventually, even though the actual daily production of oil were reduced a little temporarily.

"Few have realized to what a degree *recovery is dependent upon the efficiency in utilizing the natural gas found associated with the oil*, nor that it is possible to regulate, at least partly, the conditions of expulsion."

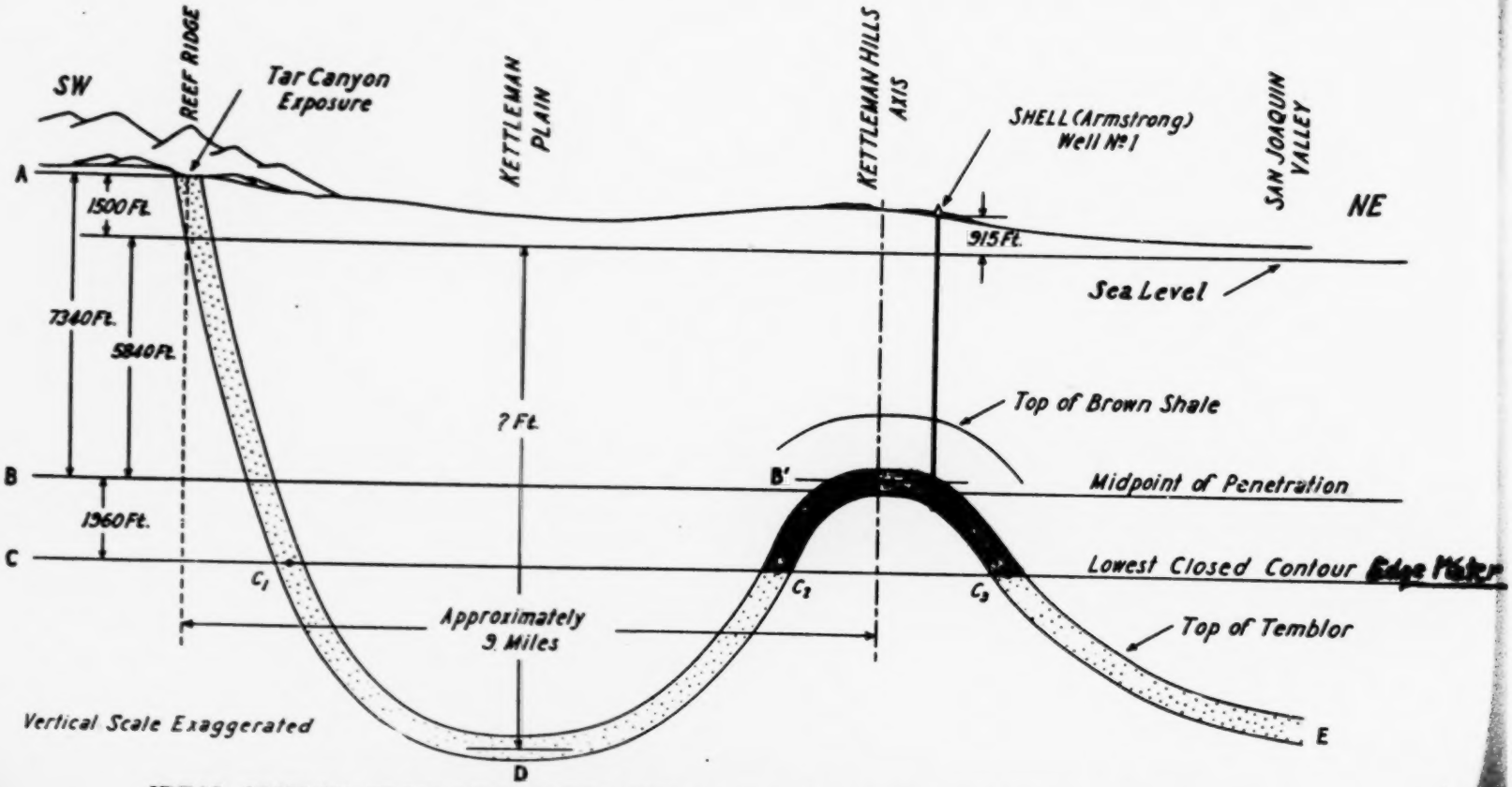
The witness Stanley C. Herold testified before the appellee court as follows:

"(9) The compressed gas within each pool is the source of energy which delivers the oil to the bottom of the well, from all directions radially outward, for a short period of time known as the period of flush production.

"(10) Water under hydrostatic head, transmitting its pressure through edgewater surrounding the pools, is the source of energy throughout the remaining life of the wells on settled production."

[Quoted from Supplement to Appellants' Brief in Opposition to Motion to Dismiss, p. 14.]

This witness, Stanley C. Herold, whose testimony is so quoted by appellants, has recently written an authoritative treatise published by the Stanford University Press under the title, "Analytical Principles of the Production of Oil, Gas and Water from Wells," containing a summary by Mr. Ernest K. Parks. This summary the author incorporates at page 589 as stating the value of his work to the industry without a detailed study of the entire book. We make this summary a part of our argument, and print it in the Appendix to this Brief at page 59. In connection with this summary, for purposes of illustrating control under hydraulic head, we append a print of, an "Ideal Section from Reef Ridge Through the Kettleman Hills Anticline," adapted from an article by Roy G. Mead (one of appellants' witnesses) in Oil Bulletin, July, 1931, page 509. Explaining the illustration, Mr. Mead says:



IDEAL SECTION FROM REEF RIDGE THROUGH THE KETTLEMAN HILLS ANTICLINE

Adapted from article by Roy G. Mead in Oil Bulletin, July, 1931, Page 509

"The productive limit of the temblor sand is tentatively placed at the contour 7800 feet below sea level, which is 9300 feet below the outcrop of the temblor sands in Tar Canyon below Reef Ridge. If the 7800-foot contour marks the present position of the edgewater surrounding the oil and gas reservoir, the pressure at that contour is equal to the hydrostatic head due to the difference in elevation of the outcrop below Reef Ridge and the 7800-foot contour.

"The force due to the hydrostatic head has compressed the gas, producing a closed-in pressure of 3300 pounds per square inch in the formation at the bottom of the wells. If the sands are replenished with water entering the formation where the streams cross the temblor sands below Reef Ridge, the pressure at the wells should show no decline after the original expansion of the gas in the vicinity of the well. An ideal section from Reef Ridge through the Kettleman Hills anticline is shown in an accompanying diagram."

For an early discussion of the hydrostatic head which produces the oil and gas in the dolomited upper 100 feet of Indiana Limestone, and the porosity and permeability of this upper portion of the strata see report by Edward Orton in 1886-7 entitled, "The Trenton Limestone as a Source of Petroleum and Natural Gas in Ohio and Indiana," eighth annual report United States Geological Survey 1887-8, p. 475 and following. A report of investigation several years later was published in the report of the Smithsonian Institute to the Congress and is quoted in the Appendix filed with this Brief at page 51. A report by Arthur John Phinney on "The Natural Gas

Field of Indiana" in 1889-90 was published in the eleventh annual report of the United States Geological Survey of 1890-91 (pp. 579-605), in which he locates on a map of Indiana the portions of the field in which oil was being produced. In this report made two years before the Indiana statute was enacted in 1893 and nine years before this court decided the Ohio Oil case, he said:

> "While the structural conditions and altitude of the Trenton limestone are the main factors in determining the gas supply, there is a third factor of equal importance, viz., its texture. It has already been stated that the Trenton limestone is not throughout its whole extent or thickness a gas-producing rock, the productive portion being confined to the upper 50 feet within which the porous gas-bearing stratum varies from 1 to 20 feet in thickness. The porous stratum is usually overlain by a hard non-porous cap rock varying in thickness from 1 to 15 feet. In this porous stratum, which is dolomitic so far as known, the Trenton yields gas abundantly. But it is only where such conditions exist, combined with favorable structural conditions that the potency of this factor is evident. The relation between rock texture and flow is proved by the behaviour of wells; for the flow, feeble at first, gradually increases as the drill sinks into the porous stratum and culminates when the base of the porous stratum is reached. It is only in rare instances where the gas comes with a gush, as though a cavity or open space had been found. There is no foundation for the popular belief that the gas of the Trenton is accumulated in caverns or open fissures formed by fracture of the strata during upheavals, for the drillers have failed to find caverns, fissures, or other vacant spaces of any considerable dimensions in the Trenton. There can be no reasonable doubt that the gas is simply accumulated under pressure within the minute pores and interstices of the coarse-grained dolomite." (Phinney, p. 657.)

The open character of the California oil sands has been tested by water flow. Lewis wrote in 1917:

> "In view of the many variable factors influencing the movement of the water, it is not surprising that the rates at which the water travels and the area affected by one well vary widely in the different oil fields of this country. It must not be inferred that the slow movements of water shown by experience in the Bradford field are usual, for they are evidently slow and restricted even for the eastern fields. In contrast the water has been known to travel through the sands in California fields distances in days that it would take years to advance in the Bradford field, and one well has been known to seriously injure large areas." (Pet. Tech. 37, p. 99. Bulletin 148, Bureau of Mines.)

The importance of gas in oil production and the various factors to be taken into consideration in determining whether a reasonable use of the gas is made in production is discussed at length in the report of H. C. Miller, senior petroleum engineer, U. S. Bureau of Mines, published by the Department of Commerce under the title "Function of Natural Gas in the Production of Oil." This report was judicially noticed by the Supreme Court of California [*People v. Associated Oil Co.*, Supp. p. 34]. Quotations from this report are printed in the Appendix to this Brief, covering the following:

> In undisturbed reservoirs the pressure corresponds with that of a column of water of a height equal to the depth below the surface and the pressure is hydrostatic. [p. 20, App'x. p. 14.]

> Where the oil pool in the reservoir is not backed by water in hydrostatic connection with it, the gas

associated with or dissolved in the oil is the only productive energy. [p. 21, App'x. p. 15.]

Methane (which constitutes about eighty per cent of the gas in California oil structures) cannot be liquefied by any pressure in the well. [pp. 26-28, App'x. pp. 19-20.]

At a pressure of 1800 pounds, a reservoir pressure corresponding to a depth of 4100 feet, sufficient gas may dissolve in the oil to reduce the viscosity until it equals that of kerosene. (p. 41, p. 202, App'x. pp. 26-28.]

Concluding this discussion, Miller says:

"It is evident that the most efficient method of gas utilization is one where the gas moves with the oil so that the gas-oil ratio approaches as nearly as possible the amount of gas dissolved in the oil at the existing reservoir pressures." [p. 47, App'x. p. 27 *et seq.*

The plat inserted showing the Bandini lease of appellants is a reprint of a portion of the map Exhibit "A" [R. pp. 36-37], and the circles shown are centered at the well locations of appellants contributing to the blow of gas to the air. The circles are drawn to a scale radius of 235 feet, giving an enclosed area of four acres about the well locations. Counsel for appellants insist that the courts take judicial notice that the oil drainage of the well is approximately four acres (Appellants' Brief on Motion, p. 39; Appellants' Brief on Merits, p. 60). The answer of defendant appellants admits that a well drains four or five acres [R. 93].

The drainage area of four acres around a well for the production of oil is accurate enough for all ordinary purposes before the hydraulic head of edgewater begins to act in driving oil from greater distance into the area of the depleted cone about the well. It is recognized that the gas comes from very much greater distances than the oil, which is referred to by the geologists and petroleum engineers as "slipping up the structure." The greater distance from which the gas comes, depends primarily on pressure in and permeability of the sands. Appellants' wells distant from the crest of the dome, one group being situated easterly, and the other group westerly along the major axis of the structure naturally produced at a lower gas-oil ratio than those on top of the structure. The top of the dome is located at the intersection of Butler Road and Anaheim-Telegraph Road [R. 136, and see map exhibit for location relative to appellants' wells, R. pp. 36-37]. The sketch showing ideal cross sections along the lines on the map at the end of the Appendix is compiled from the record. The flank wells mentioned in the schedule attached to the complaint and to the affidavit of the witness Huegenin situated on the structure are taken to locate the boundaries of the oil producing sand in each structure, and the distance to the Whittier fault is taken from the geological survey reports. (Geology and Oil Region of Puente Hills Region by Walter English, U. S. G. S. Bulletin 768.)

Attention is called to the fact that four of appellants' producing leaseholds are less than an acre in area, so that if the oil drainage is from an area of four acres each of the wells on these leases are drawing by far the larger part of their oil and gas production from the lands of owners other than appellants. When a well is driven to a depth of six thousand feet a drift from the perpendicular of three (3%) per cent is normal and the well is considered a straight hole. These wells of appellants are producing from a depth below six thousand feet. If appellants' wells are normally "straight holes" they may still have their intakes in the producing sands entirely outside of the conical segment of the earth determined by a line projected from the center of the earth rotating through the surface boundaries of the land parcel. We reproduce in the Appendix at page 44 a sketch of an oil well on "gas lift." This may be modified by introducing the repressured gas through the tubing and producing through the casing, or by closing the casing and using a smaller tubing through the tubing to a greater depth into the oil sand. Each will produce better results according to the pressure, permeability and degree of depletion of the sands. A similar sketch is reproduced from Bureau of Mines Bulletin to show a well on production under natural gas pressure taking wet gas from the casing and oil from the tubing in *Reynolds v. McMan Oil and Gas Co.,* Tex. 11 S. W. 787.

Since the year 1928 a drift of three per cent from the perpendicular has been found to be the average. We have included in the Appendix filed with this Brief an article by Mr. Paul J. Howard, inspector of the division of oil and gas, contained in the fourteenth annual report of the State Oil and Gas Supervisor of the issue of June, 1929, with figures and tables. His report was based upon an examination of 255 wells drilled during the years 1925 to 1928, inclusive, and 183 wells drilled after 1928. In an article entitled "Making Crooked Holes Useful," Mr. R. P. McLaughlin, Petroleum Engineer and Geologist, experienced in the matters of surveying oil wells, outlines how wells may be diverted from the perpendicular to reach sands as much as three thousand feet away from where the well would bottom if drilled vertically. He suggests that an intentional drift from the vertical will enable the operator to reach oil sands beneath the ocean by wells drilled on the shore, and avoid faults which break the continuity of the producing zones. When, however, we find as many as ten wells drilled upon a single surface acre with four wells producing from the same O'Connell Zone [Getty S. F. Exhibit "A", R. 36, and Exhibit "C," R. 164], we realize to what use this method of drilling may be put. Mr. McLaughlin confirms the report of Mr. Howard, saying:

> "Almost every careful operator now aims to drill a straight hole. After a careful examination of many records, the writer deems it fairly safe to state that it is impossible to drill a well absolutely straight and

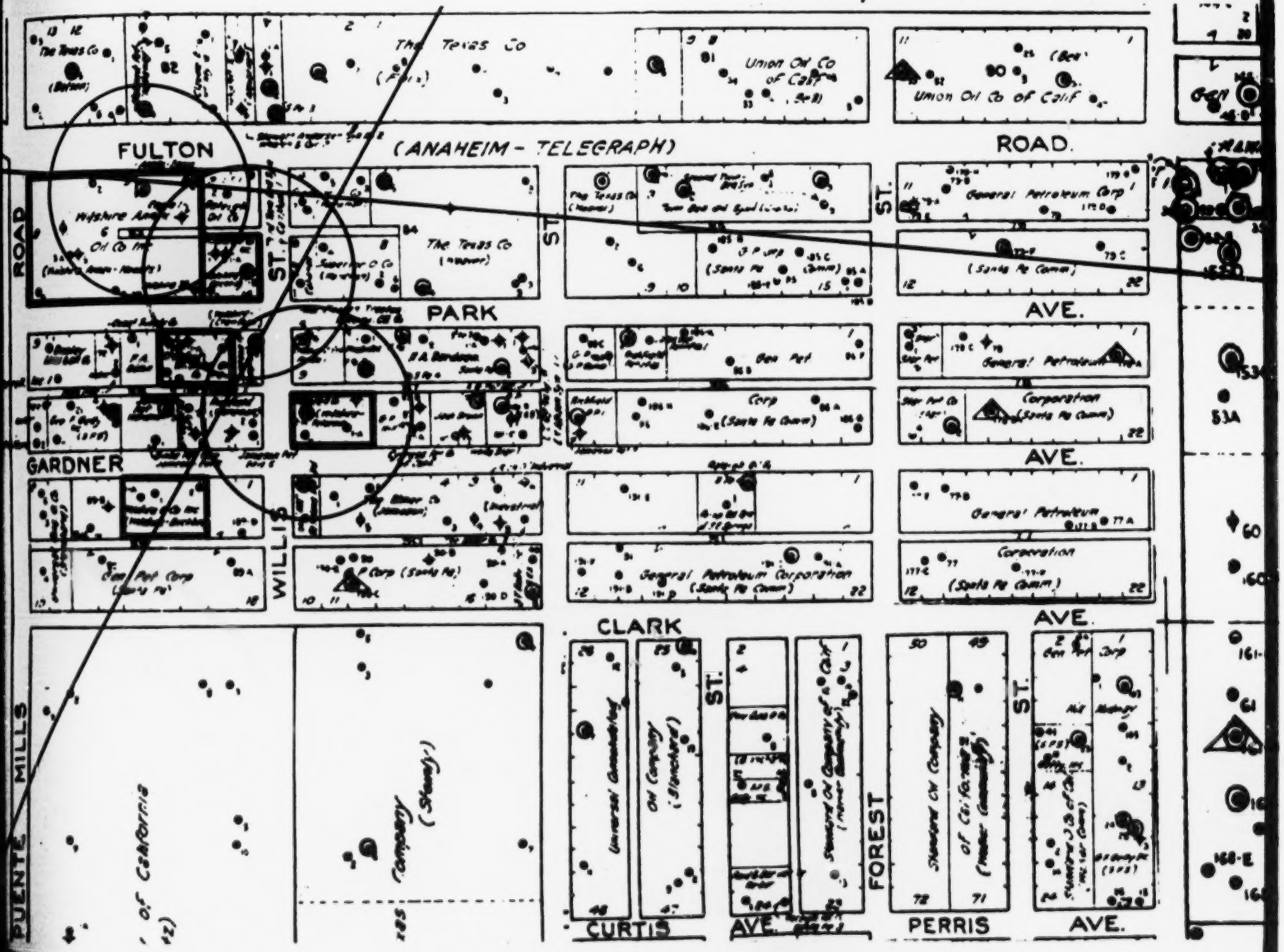
vertical under the practical conditions which limit the profitable expenditure of both time and money. A well which does not deviate more than three degrees from vertical is, under present conditions, considered a straight hole, although it has many slight bends and turns. Such a well at a depth of six thousand feet may drift horizontally as much as three hundred feet. Under these conditions the well is so far from straight that pumping operations will always labor under a certain handicap. Furthermore, the bottom of the hole is likely to be a full location away from the position chosen on the ground surface and two wells may be so close together at the bottom that they are performing the duty of only a single well." (Oil Bulletin, August 1930, p. 826.)

To illustrate the secondary use of gas in the production of oil we quote in the Appendix, p. 38 from "Gas-Lift Method of Flowing Oil Wells (California Practice) Bureau of Mines Bulletin 323 by H. C. Miller 1930.

We have printed in the Appendix (p. 75) a quotation from Baker and Conklin on "Water Supply and Utilization," supported by reference to official reports of the United States Geological Survey, which illustrates the close physical analogies existing in the production of water and the production of oil and gas from sub-surface strata and their interrelation. The same analogies are confirmed in the article "Soil," 25 Americana 228, and the reports of F. H. King in the United States Geological Survey Bulletin referred to therein.

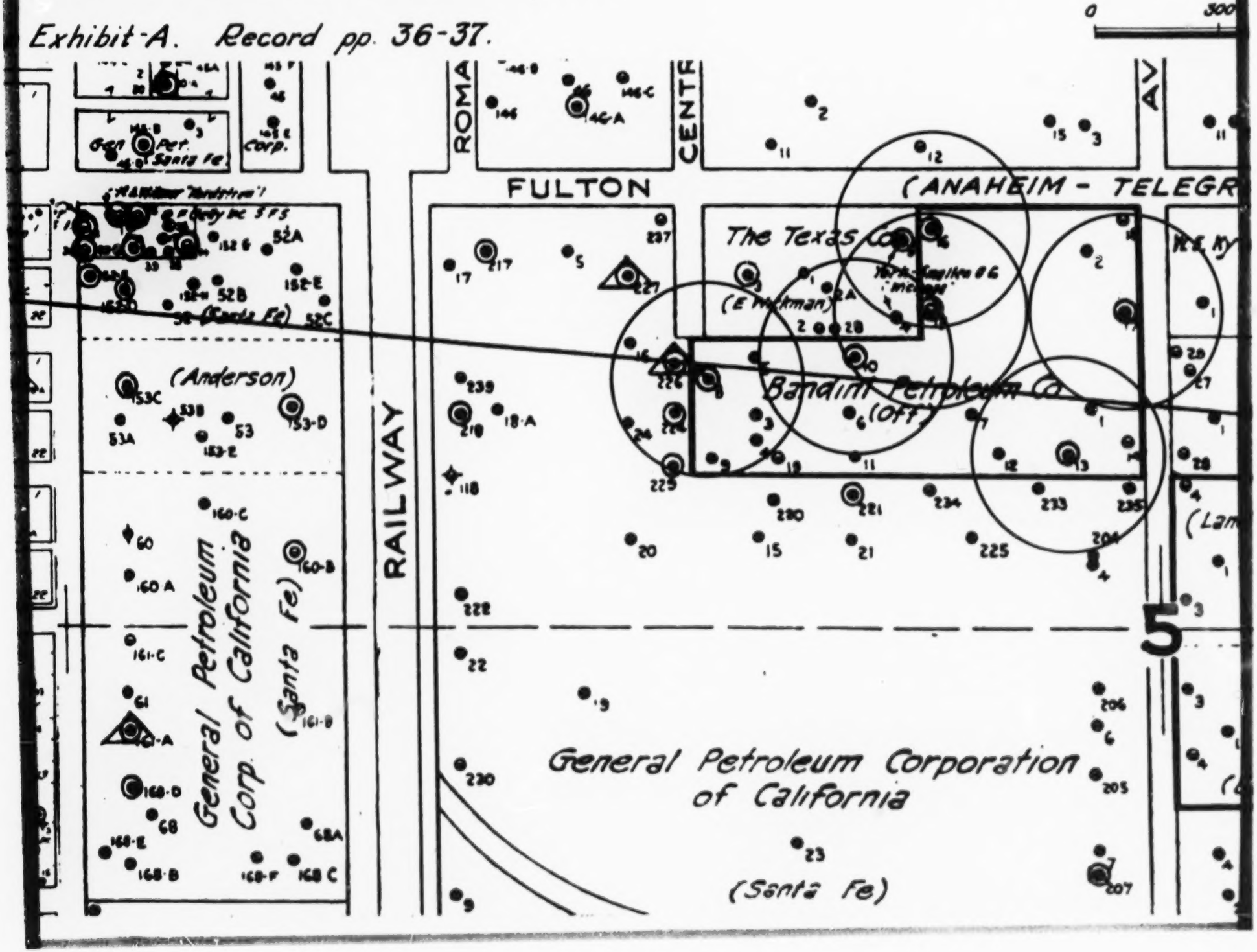
TOWN LOT AREA OF SANTA FE SPRING

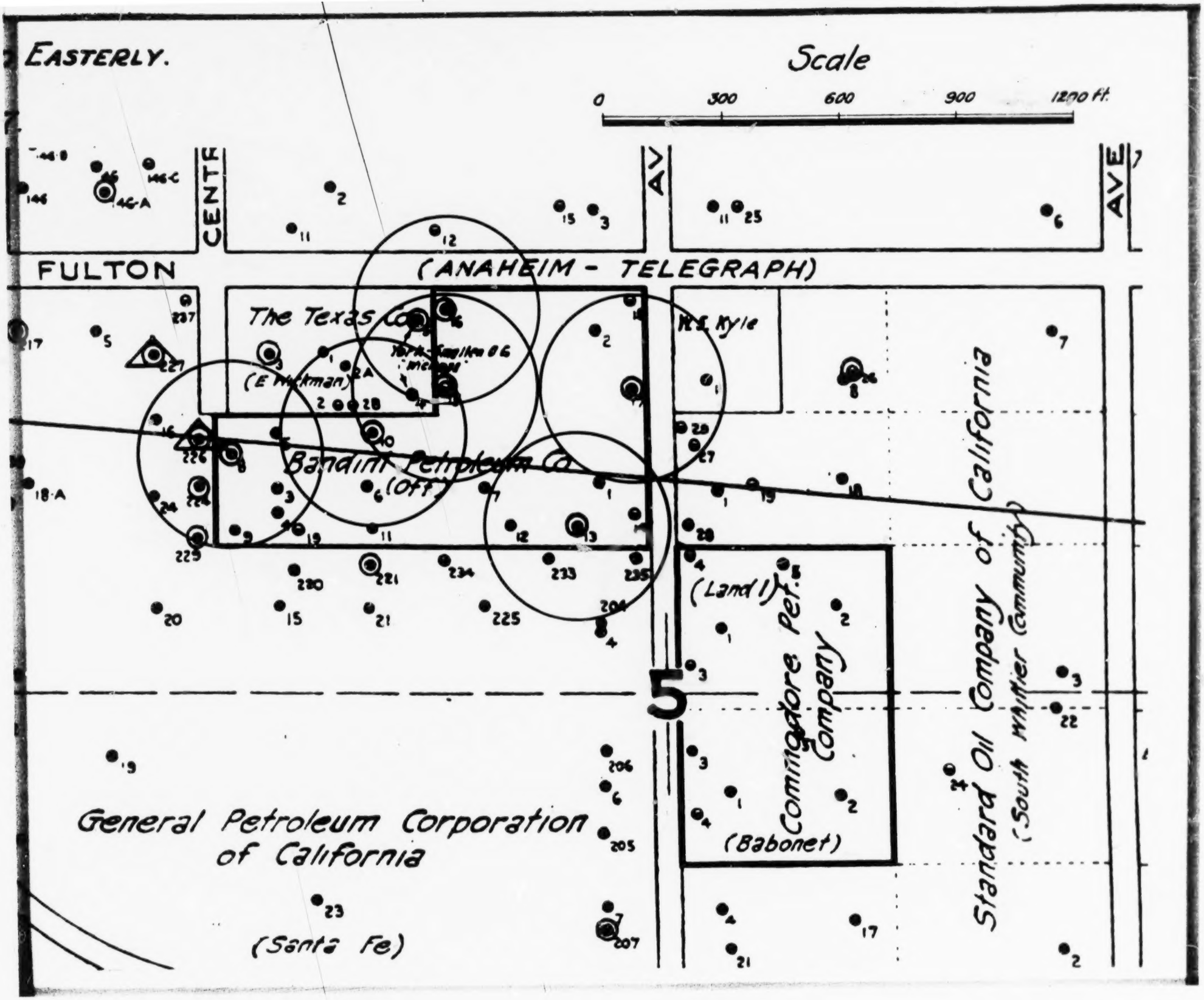
Reprint from Map Exhibit -



FE SPRINGS OIL FIELD EXTENDED EASTERLY.

Exhibit-A. Record pp. 36-37.




EASTERLY.
Scale
0
300
600
900
1200 ft.
CENTR
AV
AVE
FULTON
(ANAHEIM - TELEGRAPH)
The Texas Co.
(E Wickman)
W.S. Kyle
Bandini Petroleum Co.
(Off)
(Land 1)
Commodore Pet. Company
(Babonet)
Standard Oil Company of California
(South Whittier Community)
General Petroleum Corporation of California
(Santa Fe)
5

IV.
ARGUMENT.

SUMMARY OF ARGUMENT.

Point A.

Police power may be asserted by each commonwealth to prevent the unreasonable waste of natural gas existing in place in geological structures within lands owned in fee simple.

Point B.

Jurisdiction of the appellee equity court must be sustained as against a writ of prohibition, if the record in that court was sufficient to sustain a finding of the facts on which its jurisdiction depended. The state courts determine their own rules of procedure and practice. On application for a writ of prohibition questioning an order of a court of general jurisdiction the only questions of fact which may be considered are those of jurisdiction.

Point C.

"Unreasonable Waste" as interpreted by the California courts of last resort meets all the requirements of certainty as a primary standard in a statute to regulate the waste of natural gas.

POINT A.

Police Power May Be Asserted by Each Commonwealth to Prevent the Unreasonable Waste of Natural Gas Existing in Place in Geological Structures Within Lands Owned in Fee Simple.

Reciting that the Act was an urgency measure and that the facts constituting the public necessity were that: "At the present time in the oil and gas producing fields within the state there is now being blown into the air and wasted daily, on the average of approximately Five Hundred Million cubic feet of gas. New fields producing heavily of natural gas are being opened up and will tend to add to the amount of natural gas being blown into the air and wasted and lost." (Stats. 1929, p. 943, Supp. p. 18) the legislature of the State of California enacted the Gas Conservation Law of 1929, the provisions of which appear in the Supplement to the Brief of Appellees on Motion to Dismiss the Appeal or Affirm the Judgment, pages 3-18. The language raising the direct issue here presented is found in Sections 8-b and 14-b of the Act as Amended, from which we quote the following:

> "The unreasonable waste of natural gas * * * is hereby declared to be opposed to the public interest and is hereby prohibited and declared to be unlawful. The blowing, release or escape of natural gas into the air shall be *prima facie* evidence of unreasonable waste." (Stats. 1929, p. 927, Supp. p. 4.)
>
> "Whenever at appears to the director * * * that the * * * lessees or operators of any well or wells producing oil and gas, or oil or gas, are causing or permitting an unreasonable waste of gas, he may institute or have proceedings instituted

> * * * to enjoin such unreasonable waste of gas * * *. Such proceeding shall be instituted in the Superior Court for the County in which the well or wells from which the unreasonable waste of gas is occurring, or any thereof, are situated. In such suits no restraining order shall be issued *ex parte*, but otherwise the procedure shall be governed by the provisions of Chapter 3, Title 7, Part II of the Code of Civil Procedure of the State of California * * *." (Stats. 1929, p. 930, Supp. p. 10.)

The chapter of the Code referred to is that relating to Injunctions.

> "The original and ultimate right to all property real and personal within the limits of this state *is in the people thereof.*" (Cal. Pol. Code, Section 40.)

> "The owner of land in fee has the right to the surface and to everything situated *permanently* below or above it." (Cal. Civil Code, Section 829.)

> "As to the precious metals fixed in the veins which hold them, they remain in tact until excavated. Oil, on the contrary, is of a fluctuating, uncertain, fugitive nature, lies at unknown depths and the quantity, extent and trend of its flow are uncertain." (*Acme Oil & Min. Co. v. Williams*, 140 Cal. 684.)

The rule of interpretation that Statutes must be read in the light of constitutional provisions is carried more nearly to its logical conclusion by the Supreme Court of California than it is by the courts of last resort in some other jurisdictions. It is the settled rule of the Supreme Court of California to read a statute as including in the text of the statute itself the provisions of the State and Federal Constitution for the protection of private rights.

Under this rule it is unnecessary to find in each statute limitations of authority otherwise necessary to complete a primary standard, if the provisions omitted from the particular statute are to be found in the State and Federal Constitutions. The legislative intent and the standard of conduct required are in every case to be derived from the three mandates of sovereign authority interpreted so as to give the proper precedence to the provisions of each. The most recent expression and application of this rule by the Supreme Court of California is to be found in the case of *People v. Globe Grain & Milling Co.*, decided December 19, 1930, 80 Cal. Dec. 625, 211 Cal. 121, not yet officially reported. In summarizing an amendment to the Fish and Game statute authorizing the Commission to grant a permit to take and use fish upon a showing that the use of the fish *"will not tend to deplete the species or result in waste or deterioration"* the Court said:

> "Here we have a condition limiting the exercise of the delegated power and, indeed, the only practicable one under the circumstances. Certainly the legislature cannot intelligently prescribe any maximum quantity for all applicants or for any one applicant; nor would it be practicable for the legislature to fix any period of time for the duration of the permit. * * * Here the statute contains the necessary limitation in the requirement that each applicant must make a showing and the commission must find, that the granting of the permit will not conflict with the fundamental object of the statute—*the conservation of food fish.*"
>
> "It is apparent that there may be varying circumstances of time, place, methods of catching fish, location where they are to be found with relation to the

location of the cannery, etc., which may legitimately justify the allowance of a larger leeway in one case than in another."

"It is of no consequence that the statute makes no reference to an equitable apportionment of the benefits to be granted. The important thing is that it contains no express grant of authority to the commission to indulge in favoritism or to make or enforce discriminatory rules. A presumption of constitutionality protects every legislative act. Being silent on the matter of apportionment of the benefits, the statute will be construed together with the constitutional provisions against discrimination, and as so construed, must be upheld. (County of San Luis Obispo v. Murphy, 162 Cal. 588; Chesebrough v. City and County of San Francisco, 153 Cal. 559; Wheeler v. Herbert, 152 Cal. 224; *In re Spencer,* 149 Cal. 396; Lent v. Tillson, 72 Cal. 404; Plymouth Coal Co. v. Pennsylvania, 232 U. S. 531; Estate of Johnson, 139 Cal. 532; Quong Ham Wah Co. v. Industrial Accident Commission, 184 Cal. 26; 12 C. J. 787, sec. 220; 5 Cal. Jur. 615, sec. 46; 628, secs. 56, 57; 6 R. C. L. 78, sec. 77.)"

In addition to the cases cited see on the sufficiency of reasonable as a standard, *Ex parte McManus,* 151 Cal. 331, 335, and *Bank of Italy v. Johnson,* 200 Cal. 1, 16.

The legislature having found that the evil of the waste of gas existed and was increasing to such an extent that an urgency measure was necessary in the public interest, the case is brought within the rule declared by this court in *Miller v. Wilson,* 236 U. S. at pages 383-384, and later quoted and applied by this court in *Radice v. New York,* 264 U. S. at pages 297-298, in the following language:

"The contention as to the various omissions which are noted in the objections here urged ignores the well-established principle that the legislature is not bound, in order to support the constitutional validity of its regulation, to extend it to all cases which it might possibly reach. Dealing with practical exigencies, the legislature may be guided by experience. Patsone v. Pennsylvania, 232 U. S. 138, 144, 58 L. ed. 539, 544, 34 Sup. Ct. Rep. 281. It is free to recognize degrees of harm, and it may confine its restrictions to those classes of cases where the need is deemed to be clearest. As has been said, it may 'proceed cautiously, step by step,' and 'if an evil is specially experienced in a particular branch of business' it is not necessary that the prohibition 'should be couched in all-embracing terms.' Carrol v. Greenwich Ins. Co., 199 U. S. 401, 50 L. ed. 246, 250, 26 Sup. Ct. Rep. 66. If the law presumably hits the evil where it is most felt, it is not to be overthrown because there are other instances to which it might have been applied. Keokee Consol. Coke Co. v. Taylor, 234 U. S. 224, 227, 58 L. ed. 1288, 1289, 34 Sup. Ct. Rep. 856."

Title to land in California continues to be held in tenure and we may properly seek to find in the ancient common law of tenure in fee simple absolute the root of the police power. In the first American and last London edition of Thomas' arrangement of Lord Coke's First Institute of the Laws of England on the plan of Sir Mathew Hale's Analysis of Littleton's Tenures (Vol. I, p. 915), the author takes up the matter in a note in which he says:

"The precise nature of it, is nowhere, perhaps, better explained than in Lord Stair's Institutes. 'It is,' says his lordship, 'essential to a fee, and common

to all kinds thereof, that there must remain a right in the superior, which is called *Dominium directum*, and withal a right in the vassal, called *Dominium utile*; * * * but by the resemblance of this distinction in law between *jura et actiones directae*, and those, which for resemblance, were reductive thereto, and therefore called *utiles*, the superior's right is called *Dominium directum*, and the vassal's *Dominium utile*, and without these the right cannot consist.' This right in the vassal to the use and profits of the land, while the direct dominion of the land remained in the lord, was, with respect to the relation between the sovereign and the subject, a new and original point of connection, and one of those marks which distinguish the feudal from every other law. * * *"

In this *"new and original point of connection"* between the *dominium directum* of the sovereign and the *dominium utile* of the tenant in fee simple absolute of land, lies the source of the modern police power to regulate the use of land.

This power of direction by the overlord was the active police power long before the advent of the Flemish weavers broke down the feudal system and made it necessary for parliament to regulate the social conditions surrounding freedmen living without allegiance in tenure outside the jurisdiction of the chartered cities of England. The police power of our own commonwealths derives from these two sources and the flow from each can be traced as can the sediment of two great tributaries in the commingled waters of a river, far below the forks. It is no longer important to determine from which of the two sources the greater or any particular contribution is made.

"It is for the state court, in cases such as this, to define rights in land located within the state." *Fox River Paper Co. v. Railroad Commission,* 274 U. S. 651, 657.

Mr. Justices White recognized each of these sources of police power in his opinion for this court in the case of *Ohio Oil Company v. Indiana,* 177 U. S. 190, stating first: "that the property of the owner of lands in oil and gas is not absolute until it is actually in his grasp and brought to the surface". And again: "Until these substances are actually reduced by him to possession he has no title whatever to them as owner * * * they do not become his property until the effort has resulted in dominion and control by actual possession." (p. 208.) "Hence it is that the legislative power from the peculiar nature of the right and the objects upon which it is to be exerted, can be manifested for the purpose of protecting all the collective owners, by securing a just distribution, to arise from the enjoyment, by them, of their privilege to reduce to possession, and to reach the like end by preventing waste." (p. 210.)

This opinion of Mr. Justice White, confirmed, extended and applied by this court in such cases as *Lindsley v. Natural Carbonic Gas Co.,* 220 U. S. 61, *Bacon v. Walker et al.,* 204 U. S. 313, *Walls v. Midland Carbon Co.,* 254 U. S. 300, has become a part of the jurisprudence of all of the oil and gas producing states with the exception of Montana, so that the Supreme Court of the State of California, in construing and sustaining the Gas Conservation Act of 1929 of that state, in *People v. Associated Oil Company, supra* (Supp. p. 29), was able to say:

"The generally accepted view, therefore, is that the property right of the owner or lessee of land in and to the gas and oil beneath the surface is not an absolute one. Such substances, because of their peculiarity in the natural state, partake more of the nature of common property, title to which becomes absolute when they are captured and reduced to possession. Because of their peculiar nature the public has a definite interest in their preservation from waste and destruction. This is true because of their character as natural resources and also because the public interest has attached by virtue of positive statutory law or by court judgment independent of statute. In seven states of the Union legislation making unlawful the unreasonable waste of natural gas has been upheld." (Citing cases.)

In the opinion by the Supreme Court of Arkansas, in *Bodcaw Lumber Co. v. Goode,* 160 Ark. 48, cited by counsel for appellants as contra (Brief, p. 61), holding that rights in oil and gas were subject to grant and distinguishing the Louisiana cases, that court said:

"In two of our neighboring states (Texas and Oklahoma), where there are extensive gas and oil fields, it has been decided by the court of last resort in accordance with the views now expressed."

After citing the case of *Texas Company v. Daugherty,* 107 Tex. 226, for the rule that while oil and gas "are in the ground they constitute a property interest," the court continued:

"In Rich v. Doneghey (71 Okla. 204) *supra,* the Oklahoma court said: 'But with respect to such oil and gas they had certain rights, designated by the same courts as a qualified ownership thereof, but

> which may be more accurately stated *as exclusive right, subject to legislative control against waste and the like*, to erect structures on the surface of their land, and explore therefor by drilling wells through the underlying strata, and to take therefrom and reduce to possession, and thus acquire absolute title as personal property to such as might be found and obtained thereby. This right is the proper subject of sale, and may be granted or reserved'."

We find no authority for the statement of counsel for appellants (Brief, p. 62) that "The Indiana statute, after the oil development had proved to be of commercial importance, was regarded as too drastic and so was repealed shortly after the decision in the Ohio Oil Company case." The Indiana statute of 1893 is still the law of that state. Section 4802, Burns' Annotated Indiana Statutes, 1926, volume 2, chapter 23, Title Conservation Department. The amendment as continued in force by the Indiana Act of 1913, p. 66, is identical in language with Section 1 of the Act of 1893, p. 300, construed in the Ohio Oil Company case.

In *Marrs v. City of Oxford,* 32 Fed. (2d) 134, *certiorari* denied in this court, 280 U. S. 573, the ordinance requiring unit development and operation of adjoining oil properties in separate ownership was sustained on the same grounds, the court saying:

> "Necessarily these regulations will encroach, when the power is exercised, on private rights; but that does not render them void. The power has its limitations and when submitted for judicial review it must appear that its exercise appropriately affords protection to the public against threatened evils. * * *

"But looking to the substance of things, as equity does, what are the rights of plaintiffs that will be encroached upon or denied to them by the enforcement of this ordinance? It is not the mere right to drill a well on one or two lots at great cost and stop with that, or to take the proportionate part of the oil and gas in the pool that might be said to lie under or be fairly attributed to those lots. * * * They extend equal opportunity to all who have an interest and eliminate the race between those having equal rights in a common source of wealth, so that some may not take all and leave others with nothing. *Under the law in Kansas, there is no property in oil and gas, because of their migratory nature, until they have been captured, though each surface owner may take without limit, unless lawfully restrained.*" (pp. 139-140.)

And so from first to last the cases cited by the Supreme Court of California [*People v. Associated Oil Co., supra,* Supp. pp. 29-30] rest on the rule that there is no ownership of oil and gas until it is reduced to possession, that the property right before possession taken by severance at the surface is real property subject to grant, and consists of the exclusive right of each landowner to acquire title to his ratable share from the common source of supply by taking possession at the surface on his own parcel, that until legislation restricts the right each owner may acquire possession of all he can obtain by drilling on his own land, and that the ratable share of each owner may be regulated and restricted by a statute to prevent waste enacted in the public interest.

In Louisiana the code provides: "The ownership of the soil carries with it the ownership of all that is directly

above and under it" (Article 505). The landowner will not be enjoined from getting "out of its land all the oil it possibly can by means of a well," even though "pumping sucks the oil from under" the adjoining owner's land, unless the complaining party was able to show further that the party complained of "is doing so with no benefit to itself" (*Higgins Oil & Fuel Co. v. Guaranty Oil Co.,* 145 La. 233). After the legislature adopted the Indiana statute to prevent waste of gas (Act 190, Stats. La. 1910, p. 313), the Supreme Court of Louisiana said, "We, therefore, hold that it is the settled jurisprudence of this state that oil and gas in place are not subject to absolute ownership as specific things apart from the soil of which they form a part; and a grant or reservation of such oil and gas carries only the right to extract such minerals from the soil. And we find with much satisfaction that our jurisprudence is in complete harmony with that which prevails throughout the land" (*Frost-Johnston Lumber Co. v. Sallings* heirs, 150 La. 858, citing cases in this court (p. 859), from courts of last resort in the oil and gas producing states, and from leading textbooks on the subject, pp. 859-860). Confirming the conclusion there reached, the Supreme Court of Louisiana has held that the property right to oil and gas in place is subject to sale, conveyance and separate taxation, and that the right when severed from the land being a servitude is prescribed by non-users for ten years (*Shaw v. Watson,* 151 La. 893). This court has regarded the Louisiana statute as a regulation of the property rights of the landowners rather than a license to produce public property (*Herkness v. Irion,* 278 U. S. 92). The residuum of title to land re-

maining in the state is that of the overlord to direct the use by the fee owner, not to enjoy the use.

We turn, therefore, to a consideration of the cases in this court sustaining these state statutes to prevent the unreasonable waste of natural gas.

Ohio Oil Company v. Indiana, 177 U. S. 190.

The General Assembly of Indiana, by statute in 1893 declared it to be unlawful for any person to permit "the flow of gas or oil from any such well to escape into the open air * * * for a longer period than two days next after gas or oil shall have been struck in such well; and thereafter all such gas or oil shall be safely and securely confined in such well, pipes or other safe and proper receptacles."

The Attorney General of the state brought the action in the state court to enjoin the Ohio Oil Company and others, from operating oil and gas wells in violation of the Act. The defendants answered. The demurrer to the answer was sustained and a preliminary injunction issued and was sustained. Mr. Justice White, near the close of his opinion, recurs to the defense of use alleged in the answer, saying:

> "First. It was argued that as the gas, before being allowed to disperse in the air, *serves the purpose of forcing up the oil,* therefore it is not wasted, hence is not subject to regulation. Second. That the answer averred that the defendant was so situated as *not to be able to use or dispose of the gas* which comes to the surface with the oil; from which it follows that the gas must either be stored or dispersed

in the air. Now, the answer further asserted that when the gas is stored and not used, the back pressure, on the best-known pump, would, if not arresting its movement, at least greatly diminish its capacity. Hence it is said the law by making it unlawful to allow the gas to escape made it *practically impossible to profitably extract the oil.* That is, as the oil could not be taken at a profit by one who made no use of the gas, therefore he must be allowed to waste the gas into the atmosphere, and thus destroy the interest of the other common owners in the reservoir of gas. These contentions but state in a different form the matters already disposed of. They really go, not to the power to make the regulations, but to their wisdom. But with the lawful discretion of the legislature of the state we may not interfere.

In view of the fact that regulations of natural deposits of oil and gas and the right of the owner to take them as an incident of title in fee to the surface of the earth, as said by the Supreme Court of Indiana, is ultimately but a regulation of real property, and they must hence be treated as relating to the preservation and protection of rights of an essentially local character. Considering this fact and the peculiar situation of the substances, as well as the character of the rights of the surface owners, we cannot say that the statute amounts to a taking of private property, when it is but a regulation by the state of Indiana of a subject which essentially comes within its lawful authority."

From the temporary injunction issued by the Court of Equity in Indiana and on appeal sustained by the Supreme Court of that State, a Writ of Error, affirmed in this court.

As quoted by Mr. Justice White, the defendant in its answer set out:

> "That before and at the commencement of this action it had in good faith been and then was, engaged in the business of producing oil by drilling therefor * * * that in carrying on said business it has expended many thousands of dollars * * * that said well was so drilled in good faith, *solely for the purpose of raising and producing oil*, the defendant not being engaged in the business of producing or transporting natural gas * * * Oil was found therein in paying quantities, and the defendant proceeded to and did save and utilize the same, paying to the land owner the stipulated royalties therefor * * * and was so operating the same solely as an oil well * * * under and by virtue of a lease to defendant by the owner of said land, granted before the commencement of this suit, under which lease defendants owns all the gas and oil in said well and under said land, and said well is of great value as an oil well. That in said well, and in the same strata of rock whence such oil was produced, there were also found at said time, quantities of natural gas, which, by its own pressure escaped through said pipes and into the open air * * * and *in so saving such oil, defendant utilized such gas as power, force and agency to raise said oil from the rock-bearing strata below* the surface of the ground, such being the usual, natural and ordinary method of raising and saving oil in such cases * * * that if such gas shall be shut into such well in such case that it will be impossible to raise or produce oil in any such well, and thereby defendant's said business with its said plant, property and profits, will be entirely destroyed and the people of said county and state will be

> deprived of the use and profits of such oil which is vastly of more value than natural gas in said well; and that the defendant says it so operated said well with the highest skill, with the most improved machinery and appliances known to the world * * * that in the territory where said well complained of is situated, there are a number of paying oil wells, owned and operated by various persons and corporations, and said field when properly developed may reasonably be expected to be a large one for the production of oil which will be and is of great value to the people of said county."

Instead of oil being discovered "in 1897 some ten or eleven years after the discovery of this pure natural gas" (Appellants' Brief, p. 58), the geology of the Indiana Trenton Limestone was reported on by Professor Orton as early as 1888, showing the usual stratification of gas at the top with the oil next below and salt water at the bottom, all under hydrostatic pressure (Appendix, p. 53). The situation in the Indiana field was very much like that in the Santa Fe Springs field.

> "In 1885 oil was discovered in the Trenton rock at a well drilled for natural gas near Lima, Ohio, which proved the beginning of developments in Northwestern Ohio and Indiana. * * * Indiana came into prominence as an oil producing state in 1891 and grew in importance until it reached its highest production in 1904 with a yield of 11,339,124 barrels." (Americana, Vol. 21, Petroleum, p. 686.)

For an authoritative review of development in Indiana see McGee and Phinney, "The Natural Gas Fields of Indiana," Eleventh Annual Report United States Geological Survey, 1889-90, at pp. 579, 605.

The Supreme Court of California has always recognized the long distances from which both oil and gas may be tributary, saying in *Acme Oil & Mining Co. v. Williams, supra,* "but when a well is developed the oil may be tributary for a long distance through the strata which holds it." The extent of gas drainage in the California field is unknown, but one well disturbs the gas pressure throughout the zone [Aff. of Bush, R. p. 43; Aff. of Gaylor, R. p. 51.] The answer of Appellants [R. p. 93] does not limit the area of gas drainage to four or five acres, but only so limits the area of oil drainage. The affidavit of Davis attached to the answer of these appellants says that the drainage area of gas is larger than that of oil [R. p. 127]. These appellants in their answer affirmatively set out that upon the property adjoining the lands operated by them are offset wells penetrating the same zones from which they are producing or expect to produce oil and gas and that the other defendants will so drill and operate such offset wells as to drain the oil and gas from the appellants' properties [R. pp. 98, 99]. The location of the appellants' properties, the wells thereon and the offsetting wells on the surrounding property, and how the development of these adjoining properties will result in drainage from the same area is illustrated on the map, Exhibit "A" [R. pp. 36, 37], an enlarged copy of which is inserted in this brief. The circles about the producing wells on appellants' Bandini lease have a scaled radius of 230 feet enclosing an area of four acres. Assuming that the holes are straight, the drainage from these wells within an area of four acres will be fully one-half from outside appellants' side lines,—a clearer case of overlap-

ping rights of adjoining landowners requiring regulation by public authority could not well be made out.

The Indiana statute to prevent the waste of gas was passed in 1893, two years after the state came into prominence as an oil producing state, and the case reached this court in 1899 while the volume of oil production was increasing. Mr. Justice White, calling attention to the holding of the Indiana courts prior to the enactment of the statute, says:

> "It is also clear from the Indiana cases cited, that in the absence of regulation by law, every owner of the surface within a gas field may prosecute his efforts and may reduce to possession all or every part, if possible, of the deposits, without violating the rights of the other surface owners."

Accordingly we find the situation in Indiana in 1893 the same both on the facts and the law as that in California in 1929.

Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61.

By a bill in equity in the Circuit Court, the appellant, as owner of securities of the Natural Carbonic Gas Company, sought a decree enjoining that company from obeying, and the other defendants, officers of the State of New York, from enforcing a statute of the State of New York enacted for the protection of the natural mineral springs and to prevent the waste of its natural mineral waters. In addition to other matters, the bill alleged that the Gas Company is engaged in collecting natural carbonic acid gas from waters under its land and in compressing and selling the gas as a separate commodity; that when

the waters are lifted to the surface the gas is saved, it being conceded that a large portion of the waters pumped from the company's wells in order to obtain the gas, is not used, but is suffered to run to waste. In the Circuit Court the demurrer of the defendant state officials was sustained and the bill dismissed, the decree being affirmed in this court. The following points were passed upon and determined:

The construction of the act by the highest court of the state of New York must be accepted by the courts of the United States and be regarded by them as a part of the provision when they are called upon to determine whether it violates any right secured by the Federal Constitution. (p. 73)

Ohio Oil Company v. Indiana, supra, is cited for the rule that "One surface owner could not excessively or wastefully exercise his right of tapping the reservoir and drawing from its contents without injuriously affecting the like right of each of the others", concluding the discussion with the statement: "But were the question an open one, we still should solve it in the same way." (p. 77)

> "Each state possesses the general power to prescribe the evidence which shall be received and the effect which shall be given to it in her own courts, and may exert this power by providing that proof of a particular fact, or of several taken collectively, shall be *prima facie* evidence of another fact. * * * As respects the source of the waters, the presumption appropriately may be regarded as prompted by the fact, now well recognized, that the previous rock in which the waters exist usually is of such extent as to reach much beyond the lands of a single proprietor and to constitute a common source of supply." (pp. 82-83).

West v. Kansas Natural Gas Co., 221 U. S. 229.

Kansas Natural Gas Company, a corporation of the state of Delaware, engaged in the business of purchasing and distributing natural gas to consumers, brought the suit in the Circuit Court of the United States for the Eastern District of Oklahoma, attacking the constitutional validity of a statute of Oklahoma enacted in 1907, denying to a foreign corporation the right to engage in the business of transporting natural gas by pipe lines, and to a domestic corporation the right to transport natural gas unless it be expressly stipulated that it should only transport natural gas to points within the state of Oklahoma, and that it would not connect for the purposes of transportation or furnish natural gas, to points or persons outside of the state. The defendants were the officers of the state of Oklahoma charged with the enforcement of the law, and it is expressly alleged that it is their purpose to prevent the transportation of gas beyond the limits of the state. (p. 245)

As stated by the opinion of this court:

> "The basis of the decree of the court was that expressed in its opinion ruling upon the demurrers; to-wit, that the statute of Oklahoma was prohibitive of interstate commerce in natural gas, and in consequence was a violation of the commerce clause of the Constitution of the United States, and that being, as the court said, its dominant purpose, it would, if enforced against complainants, 'invade their rights as guaranteed by the 14th Amendment of the National Constitution' and also the Constitution of the state. 172 Fed. 545.

"These conclusions are contested, and it is asserted that the statute's 'ruling principle is conservation, not commerce; that the due process clause is the single issue.'" (p. 249)

"The provisions of the statute are not directed against waste. They are directed against any use of the gas except in the state. The right of the state 'to preserve the common supply for the equal use of all' owners is not denied by appellees. We put the question out of consideration, therefore, except incidentally, and concede the right of the state to preserve the supply of gas, as we shall hereafter set forth." (p. 251)

"And, we repeat again, there is no question in the case of the regulating power of the state over the natural gas within its borders." (p. 262)

Walls v. Midland Carbon Co., 254 U. S. 300.

The state of Wyoming, in 1919, passed an act declaring its purpose to be "The conservation of natural gas", the first section of which is as follows:

"The use, consumption or burning of natural gas taken or drawn from any natural gas well or wells, or borings from which natural gas is produced for the products where such natural gas is burned, consumed or otherwise wasted without the heat therein contained being fully and actually applied and utilized for other manufacturing purposes or domestic purposes is hereby declared to be a wasteful and extravagant use of natural gas and shall be unlawful when such gas well or source of supply is located within 10 miles of any incorporated town or industrial plant."

The Midland Carbon Company and other owners of oil and gas wells, brought the action in the District Court of the United States to enjoin the Attorney General of Wyoming, and other state officers, from enforcing the Act. The injunction was granted and on appeal to this court the judgment was reversed and the Act sustained as within the police power of the state of Wyoming, in the absence of any decision of the state courts construing the Act.

In the complaint it was alleged that prior to the enactment of the statute, the Midland Carbon Company had erected a factory for the manufacture of carbon black, located about one and one-half miles from the town of Cowley, at an expenditure of Three Hundred Seventy-five Thousand Dollars; (310); that the company's factory is so conducted as to permit no waste; that the operation of the gasoline absorption plant *and the recovery of the gasoline from the gas supplied by the wells would be impossible if the carbon plant should cease to be operated, for the reason that the gas cannot be sold to other users in that locality in sufficient quantities to render the extraction of gasoline therefrom commercially profitable.* There are other allegations asserting the use of the gas and its products and that such use is not a waste of gas. (311) The allegations were admitted by demurrer.

Mr. Justice McKenna in delivering the opinion of this court took cognizance of the fact that the statute was one to prevent the unreasonable waste of gas, the language being, wasteful and *extravagant* use of the gas, (314) and coming to the gist of the matter, said:

"The determining consideration is the power of the state over, and its regulation of, a property in which others besides the companies may have rights, and in which the state has an interest to adjust and preserve, natural gas being one of the resources of the state. And in this consideration it is more important to consider not for what a particular owner uses the gas, but the proportion of his use to that of others; or, it may be the prevention of use by others;" (p. 319)

"Manifestly, conceding a power to the state of regulation, *a comparison of the value of the industries, and a judgment upon them as affecting the state, were for it to make.* Such comparison may, therefore, be put aside. It may be, as it is deposed, that 1,000 cubic feet of natural gas converted into gasoline and carbon black may be sold much righer than can be obtained from the same amount of gas sold for fuel purposes, but it does not follow from that fact that the state may not consider, and direct its legislation by the consideration, that (and we take the averment of the companies) 1,000 cubic feet of natural gas is consumed to produce 1-3/4 pounds of carbon black and about 2/10 of a gallon of gasoline." (pp. 322-323)

"And there is great disproportion between the gas and the product, and necessarily *there was presented to the judgment and policy of the state a comparison of utilities which involved as well the preservation of the natural resources of the state, and the equal participation in them by the people of the state,* * * * as the state of Indiana could prevent the exhaustive use of gas in the production of oil, and as the state of New York could prevent the owner of land from using artificial means to obtain the

carbonated waters under his land, *the state of Wyoming has the same power to prevent the use of natural gas in the production of carbon black, * * *.*" (p. 324)

May we add,—the state of California has the same power to prevent the use of natural gas in the production of oil until the natural gas can be used without "unreasonable waste" above ground.

The use of natural gas produced in California and delivered to consumers in that state increased progressively from 39,719,000,000 cubic feet in 1918, to 212,364,000,000 cubic feet in 1927 [Supp. 97], in which year there were 745,440 domestic consumers [Supp. 95]. In 1928 there were 769,000 domestic consumers in California, that being exceeded only in the State of Ohio, and being approached only in the State of Pennsylvania, where there were 615,000 domestic consumers [Supp. p. 81]. In the following year, 1929, the number of domestic consumers in California reached a total of 1,239,000, being the largest number in any state (International Year Book 1930, p. 297). Waste by blow to the air in 1928 amounted to 77,000,000,000 cubic feet, and for the first seven months of 1929 to nearly 128,000,000,000 cubic feet, of which total waste over 56,000,000,000 cubic feet was from the Santa Fe Springs Field alone [R. 57-58]. The comparative increase in the gas blown to the air is graphically illustrated by the blue prints attached to the affidavit of Brown appearing in the record here between pages 60 and 61.

Under these circumstances the Legislature of California could not in reason have disregarded requiring an

adjustment between two great industries of natural gas and petroleum oil on which the people of the state had become so dependent and whose products of oil and gas were of necessity severed from the land and produced at the same time.

It has long been the law that the Legislature of each commonwealth in a proper case may impose a burden upon specific lands in proportion to the estimated special benefits which those lands may receive from the burden imposed, the limitation upon the power being that it must appear that the character of the burden is such that it confers some general benefit on the public as well as a private benefit on the landowners. This is the basis of the rule where the burden imposed is a money charge (*Fallbrook Irr. Dist. v. Bradley*, 164 U. S. 112, 163, *Wurts v. Hoagland*, 114 U. S. 606), or a restriction on the use of the land by zoning ordinances (*Washington ex rel. Seattle Title Trust Co. v. Roberge*, 278 U. S. 116, 120-121, *Gorieb v. Fox*, 274 U. S. 603, *Euclid v. Ambler Realty Co.*, 272 U. S. 365). The control of the commonwealth over swamp lands is no more complete, and the reason for such control no more persuasive either from the necessities of the public or the interlocking interests of the private owners than over an oil field. Relying upon authorities in this court, the Supreme Court of California has said in *People v. Sacramento Drainage Dist.*, 155 Cal. 373, 381:

> "The question of the power of the legislature, in a proper case, to impose a burden in the nature of a tax upon specific lands, in proportion to the estimated special benefits which those lands will receive from the work done, may not be doubted. The limi-

> tation upon its power,—it is well settled,—is this, that to sustain such a law it must appear that the character of the work is such that its performance confers some general benefit on the public as well as a private benefit on the landowner. And that the improvements here contemplated are of such character, has long been definitely settled. So complete is the control of the state over swamp and overflowed lands, that its power to provide for reclamation of them is not limited to those lands the title to which was acquired under the Arkansas Act, but it exists as to all swamp and overflowed lands in the state, even if the title was derived from a Spanish or Mexican grant. (Hagar v. Yolo Co., 47 Cal. 222; Hagar v. Reclamation Dist., 111 U. S. 701, (4 Sup. Ct. 663); Fallbrook Irr. Dist. v. Bradley, 164 U. S. 112, 163, (17 Sup. Ct. 56).)"

The benefit of the private owner is in the more economical management of adjoining lands held in severalty, the great increase in the ultimate production of oil, the larger returns from gas by spreading its use over a period of years, all of which arise by reason of the peculiar natural condition of the structure containing gas and oil in relation to the surface ownerships in severalty. The benefit conferred upon the public is the conserving for future use of large quantities of natural gas which necessarily must be produced with the oil and cannot be stored above ground. The distribution of the burden of temporarily reduced production of gas from the field among the producers in the field according to their respective rights upon reducing the waste under the statute, was left by the California statute of 1929 to the court of equity in an action brought in the name of the People of the State to

which the producers were parties, each of whom was served with process and their rights carefully guarded by the provision in the statute against any *ex parte* injunction and by the right of appeal to the Supreme Court of the State. The injunction challenged reserved the right of the court on application to modify the injunction to correct any inequities. Any amended order and the final decree may again be subjected to the scrutiny of the Supreme Court on appeal. It is submitted that by these provisions every requirement of "due process of law" under the Federal Constitution was preserved to appellants and other operators in the field.

These instances of public improvement districts where the burdens are distributed over the parcels of land according to their respective ultimate benefits, and these limitations upon the use of real property by zoning ordinances under proper and reasonable classifications are all cases where the owners failed to voluntarily cooperate in the use of their property to such an extent as to have their misuse become a matter of public interest. Such cases and this case come properly within the rule stated by this court in *Noble State Bank v. Haskell*, 219 U. S. 104, 112, as follows:

> "The power to compel, beforehand, *co-operation*, and thus it is believed, to make a failure unlikely and a general panic almost impossible, must be recognized, if government is to do its proper work, unless we can say that the means have no reasonable relation to the end."

Herminghaus v. Southern California Edison Company, 200 Cal. 81.

The holding in this case is the very antithesis of the rule for which it is cited by counsel for appellants. The defendant was not a riparian proprietor and had no right to the use of waters of the San Joaquin River, either as a correlative proprietor or otherwise, but was a stranger on the stream seeking to take from plaintiff the water which belonged to plaintiff's land and make use of it for defendant's profit in derogation of plaintiff's rights as riparian proprietor. In granting an injunction to protect plaintiff's right against such an invasion, the Supreme Court of California said:

> "Each person through whose land a watercourse flows has (in common with those in like situation) an equal right to the benefit of it as it passes through his land, for all useful purposes to which it may be applied; and no proprietor of land on the same watercourse has a right *unreasonably* to divert it from flowing into his premises, or to obstruct it in passing from them, or to corrupt or destroy it.' In a later portion of the opinion this court said (page 394): 'By our law the riparian proprietors are entitled to a reasonable use of the waters of the stream for the purpose of irrigation. What is such reasonable use is a question of fact, and depends upon the circumstances appearing in each particular case.'" (p. 95)

> "Being an upper riparian owner along said stream and the tributaries thereof, it is entitled to the benefit of whatever reasonable waste or diminution in the volume of said waters occurs during and in the course of the reasonable exercise of its riparian rights therein." (pp. 108-109)

> "If the state were here assaying to uphold an effort on its part to work out impartially, unselfishly and in the interests of the whole people some general plan or system for the equitable adjustment of rights and uses in its flowing streams with a view to the conservation, development, and distribution of the dynamic forces and generative and fertilizing fructibilities of their waters, it might well be argued that public policy, public interest, and a most liberal interpretation of the police powers of the state might rightfully be invoked in support of such an effort. But can the same be properly said or claimed in a case wherein one or many privately owned and operated institutions, organized primarily for personal and private gain, and only incidentally and secondarily assuming to act in the public interest and welfare, are engaged in controversies in the courts with other private individuals or associations over the asserted and disputed property rights and interests of each of the respective parties to such controversies? We do not feel called upon in this case to so declare." (p. 120)

In the instant case the state is here "assaying to uphold an effort on its part to work out impartially, unselfishly and in the interests of the whole people some general plan or system for the equitable adjustment of rights and uses" in the natural reservoirs of gas under the separate holdings of many proprietors where experience has demonstrated that the rights of all will be seriously injured by the avarice and cupidity of one or more landowners refusing to cooperate in an orderly production from the common structure from which each is entitled to acquire his fair share of the oil and gas content which no one owns until he takes possession at the surface.

This the state has done by an act to prevent the unreasonable waste of natural gas, "with a view to conservation, development and distribution of the dynamic forces contained in these geological structures far beneath the surface of the earth." It was argued, and the argument was sustained by the District Court of Appeal and by the Supreme Court of the State of California, "that public policy, public interest, and a most liberal interpretation of the police powers of the state might rightfully be invoked in support of such an effort", and the argument was sustained upon the reasoning and decisions of this court so many times reaffirmed here as to have become a part of the jurisprudence of the oil and gas producing states of the Union. The Supreme Court of California properly held that the same could not be "said or claimed in a case wherein one or many privately owned and operated institutions, organized primarily for personal and private gain, and only incidentally and secondarily assuming to act in the public interest and welfare, are engaged in controversies in the courts with other private individuals or associations over the asserted and disputed property rights and interests of each." The genesis of the rule distinguishing the right to control the waste of natural gas arose in this court not in a case where privately owned and operated institutions organized primarily for personal and private gain sought to have adjudicated their several interests in the common source of supply of natural gas, but in a case brought by the attorney general of the State of Indiana to enforce the statute of that state to prevent the unreasonable waste of a commodity by one of several owners entitled to ac-

quire title to a portion of a common supply of natural gas by reducing it to possession at the surface of the ground. The argument of counsel for appellants may well be answered in the language of Mr. Justice White, answering the similar arguments of appellants in the case of *Ohio Oil Co. v. Indiana, supra,* where he said:

> "The confusion of thought which permeates the entire argument is two fold: First, an entire misconception of the nature of the right of the surface owner to the gas and oil as they are contained in their natural reservoir, and this gives rise to a misconception as to the scope of the legislative authority to regulate the appropriation and use thereof. Second, a confounding, by treating as identical, things which are essentially separate; that is, the right of the owner of land to bore into the bosom of the earth, and thereby seek to reduce the gas and oil to possession, and his ownership after the result of the borings has reached fruition to the extent of oil and gas by himself actually extracted and appropriated. In other words, the fallacy arises from considering that the means which the owner of land has a right to use to obtain a result is in legal effect the same as the result which may be reached. We will develop the misunderstanding which is involved in the matters just stated." (177 U. S. 202.)

Developing the misunderstanding which was involved in the argument of counsel, Mr. Justice White quoted from an earlier case arising in Pennsylvania, as follows:

> "In Hague v. Wheeler, 157 Pa. 324, 22 L. R. A. 141, 27 Atl. 714, the question involved in the cause was the right of a land owner who had a gas well on his own land to complain of the escape of gas from a well situated on the land of another. After

adverting to the rule embodied in the maxim, *Sic utere tuo ut alienum non laedas*, and after referring to the exceptional nature of the right to acquire ownership in natural gas and oil, it was decided that the complainant was not entitled to relief. The court said (157 Pa. 340, 341, 22 L. R. A. 147, 148, 27 Atl. 719, 720):

"'Now it is doubtless true that the public has a sufficient interest in the preservation of oil and gas from waste to justify legislation upon this subject.'"

The difference in the property right to natural gas and in the property right to coal or rock or gravel in place decided by this court in *Ohio Oil Co. v. Indiana, supra*, together with the interest of the state in the conservation of the supply of natural gas was most clearly pointed out by Mr. Justice Van Devanter in writing for this court in *Pennsylvania v. West Virginia*, 262 U. S. 553, 58 :

"Natural gas is found at pronounced depths in porous strata—usually sand rock—constituting a natural reservoir, and is brought to the surface and reduced to possession through wells drilled into the containing strata. When a surface owner thus reduces it to possession he becomes its owner and it becomes a subject of commerce, like any product of the forest, field, or mine. In the inclosing strata it is under great pressure, called rock pressure, which causes it to flow out rapidly when the strata are penetrated. If one surface owner drills wells and begins to draw off the gas, others desiring to exercise their common right must take the same course, for otherwise the gas under their lands may be drained out by those wells. After the gas is drawn from the inclosing strata there is no practicable mode

of storing and holding it. It must be used promptly. Its chief use consists in producing heat and light by burning it. The points of use generally are in centers of population or of industry more or less remote from the places of production. The intervening transmission is effected through pipe lines. The normal rock pressure will carry the gas considerable distances, and when that pressure wanes or is inadequate it can be supplemented by using compressors."

"The attitude of the complainant states is not that of mere volunteers attempting to vindicate the freedom of interstate commerce or to redress purely private grievances. Each sues to protect a twofold interest,—one as the proprietor of various public institutions and schools whose supply of gas will be largely curtailed or cut off by the threatened interference with the interstate current, and the other as the representative of the consuming public whose supply will be similarly affected. Both interests are substantial and both are threatened with serious injury.

"Each state uses large amounts of the gas in her several institutions and schools,—the greater part in the discharge of duties which are relatively imperative. A break or cessation in the supply will embarrass her greatly in the discharge of those duties and expose thousands of dependents and school children to serious discomfort, if not more. To substitute another form of fuel will involve very large public expenditures.

"The private consumers in each state not only include most of the inhabitants of many urban communities, but constitute a substantial portion of the state's population. Their health, comfort, and wel-

> fare are seriously jeopardized by the threatened withdrawal of the gas from the interstate stream. This is a matter of grave public concern in which the state, as the representative of the public, has an interest apart from that of the individuals affected. It is not merely a remote or ethical interest, but one which is immediate and recognized by law." (pp. 591-592)

In *Bacon v. Walker,* 204 U. S. 311, defendant in error brought the action for damages alleged to have accrued to them by the violation by the plaintiff in error of a statute of the State of Idaho declaring it unlawful to herd sheep on land or possessory claims of other persons to the public domain within two miles of the dwelling house of the owner of such possessory claim. Citing *Ohio Oil Co. v. Indiana, supra,* Mr. Justice McKenna, speaking for this court, said:

> "The object of the statute was to prevent the waste of gas * * *. The statute was sustained as a constitutional exercise of the power of the state, on account of the peculiar nature of the right and the objects upon which it was exerted, for the purpose of protecting all of the collective owners." (316)

Making application of the principle, Mr. Justice McKenna continued:

> "Does the herding or grazing of sheep necessarily, and because of its unwarrantable character, work an injury to the public? * * * It (police power) extends to so dealing with the conditions which exist in the state as to bring out of them the greatest welfare of its people. This is the principle of the cases which we have cited. But the statutes have justification on the grounds which plaintiff in error urges as determinative, and on those grounds they were sustained by the supreme court of the state. They were deliberate enactments made necessary by and addressed to the conditions which existed." (318)

POINT B.

Jurisdiction of the Appellee Court Must Be Sustained as Against a Writ of Prohibition if the Record in That Court Was Sufficient to Sustain a Finding of the Facts on Which Its Jurisdiction Depended. The State Courts Determine Their Own Rules of Procedure and Practice. On Application for a Writ of Prohibition Questioning an Order of a Court of General Jurisdiction the Only Questions of Fact Which May Be Considered Are Those of Jurisdiction.

The application for the writ of prohibition was to the District Court of Appeal of the State of California according to the statutory procedure and practice of that state. The construction of these statutory provisions was for the state courts of last resort. The record they considered will be considered here, and the paper they found in the record and properly certified here will be considered by this court. The District Court of Appeal to whom the application was made found that there was sufficient evidence in the record to sustain the jurisdiction of the appellee court to pass on the issue of its own jurisdiction and to sustain the injunction. To this point the District Court of Appeal said:

> "And we here direct attention to the determination of the respondent court that 'there appears to be an unreasonable waste of natural gas in the Santa Fe Oil Field,' and 'that the evidence available . . . shows that the unreasonable waste of natural gas in said field may be substantially reduced and that the equities of all parties may be fairly conserved by a preliminary injunction which will limit the waste of gas by restricting the production thereof to a

quantity reasonably in excess of the present outlets for beneficial use above ground, etc., etc.' It does not appear from the facts presented to us that in so far as the particular case before us is concerned the court exceeded its jurisdiction in finding as we have already quoted." [R. 217.]

Appellants' petition to the District Court of Appeal, among other things, alleged as follows:

"On September 11, 1929, the people of the State of California * * * commenced an action * * * a true copy of which complaint, marked Exhibit I, is annexed to this petition and hereby made a part hereof to the same force and effect as if set out at length in the body of this petition." [R. pp. 1-2.]

"3. On said date said Superior Court issued an order to show cause * * * a copy of said order together with a copy of the affidavits of Reed D. Bush, Emile Huegenin, E. G. Gaylord and Claud C. Brown * * * were thereafter served upon petitioners and filed in said action. A true copy of each of said affidavits is annexed hereto and marked respectively, Exhibits III, IV, V, VI, in the order above named, and they are hereby referred to and made a part hereof." [R. p. 2.]

"All of said pleadings and affidavits were received in evidence upon the hearing of said order to show cause, in addition to oral and documentary evidence." [R. p. 3.]

The California statute applicable to writs of prohibition provides:

"Writ of prohibition defined. The writ of prohibition is the counterpart of the writ of mandate. It arrests the proceedings of any tribunal, corporation,

board, or person exercising judicial functions, when such proceedings are without or in excess of the jurisdiction of such tribunal, corporation, board or person." (Sec. 1102, Code of Civil Procedure, Stats. 1919, p. 2291.)

"*Hearings by court.* If no answer be made, the case must be heard on the papers of the applicant. If the answer raises only questions of law, or puts in issue immaterial statements not affecting the substantial rights of the parties, the court must proceed to hear or fix a day for hearing the argument of the case. (Sec. 1094, Code of Civil Procedure, Stats. Code Amendments 1873-4, p. 345.)

By the allegations of plaintiff's petition for a writ of prohibition, the complaint of the plaintiff people of the state in the superior court and the affidavits of the witnesses, Bush, Huegenin, Gaylord and Brown were as much a part of the papers of the petitioners as was their own answer to the complaint and the affidavits of witnesses in support thereof. This is the construction given to the statute by the courts of last resort of California, and is the only construction which could have been given consonant to the rules confining the use of a writ of prohibition in matters of jurisdiction and not permitting it to be substituted for appeal. In denying another writ of prohibition, in *Truck Owners etc. Inc. v. Superior Court,* 194 Cal. 146, 155, "If the superior court has jurisdiction to entertain the action, it has the power to define the right sought to be protected * * *. If the judgment of the superior court be incorrect it may be reversed on appeal but not on prohibition. This is the rule in this court." (*Ex parte Alix,* 166 U. S. 136; *Mt. Vernon-Woodberry*

etc. Co. v. Alabama I. P. Co., 240 U. S. 30; *Swift & Company v. U. S.,* 276 U. S. 311.)

The petitioners for the writ of prohibition necessarily make the record before the Superior Court in which the preliminary injunction was granted a part of their papers on application for the writ. Because, if there was a conflict in the evidence, or if the question of jurisdiction had to be determined by findings of fact on the evidence as to which there was an issue in that court, then the writ of prohibition is not the proper remedy, but the court before whom the action is pending, must find on the fact lying at the basis of the issue of jurisdiction, and the remedy of the aggrieved party is by appeal.

Murphy v. Superior Court, 84 Cal. 592.

The allegation in the petition for the writ as to what appears by the uncontradicted evidence is merely a conclusion of law, the affirmance or denial of which "raises only question of law, or puts in issue immaterial statements." The contents of the exhibits to the petition, made a part thereof, will control over the general allegation of what the evidence shows. As stated by the Supreme Court of California in *Gosewich v. Doran,* 161 Cal. 511, p. 515:

> *"As against the showing of the exact contents of the pleading which was thus filed against the plaintiff, his allegation in his complaint for libel that the publications charging him with misconduct were not pertinent or material is a mere conclusion of law,*

> *which is not admitted by the demurrer (Glide v. Dwyer,* 83 Cal. 477, (23 Pac. 706); *Burling v. Newlands,* 112 Cal. 476, (44 Pac. 810), and must be disregarded as contrary to the facts alleged."

The same rule has been more recently stated by that court in *Kidwell v. General Petroleum Corp.,* decided June 1, 1931, 81 Cal. Dec. 906, as follows:

> "In view of the fact that the lease is made a part of plaintiffs' second amended complaint and that its terms are clear and unambiguous, the allegations of the second amended complaint regarding its legal effect, the intent of the parties thereunder, the character of the leased property, or any other like statement become immaterial in determining whether the pleadings state a cause of action. Such allegations may be disregarded as surplusage. * * * We must, therefore, resort to the terms of the lease itself for the purpose of determining the rights of the parties thereunder."

This is the same rule stated and applied by this court in the case of *Bank of California v. Roberts,* 248 U S. 497, 500.

In the case of *Favorite v. Superior Court,* 181 Cal. 261 (cited by Appellants' Brief, p. 14), the court denied a writ of prohibition to prevent the Superior Court from proceeding in a cause pending in that court on the alleged ground the judge presiding was disqualified, saying:

> "There is no information obtainable from the record to show that ownership at that date would disqualify him. The cause was submitted, as we have said, upon a demurrer to the petition. The petition

> does not set forth the complaint in the action pending in the superior court, nor purport to state the substance thereof."

In the present case the petitioners not only set forth the complaint and the affidavits in support of the complaint, but by express allegation in their petition made them a part thereof. [R. pp. 1-2.]

The jurisdiction of the court to make the particular preliminary injunction to which objection is made depends upon whether the remedy by injunction was germain to the cause of action before the court. By the Gas Conservation Statute new rights were created, but the remedy provided was in the court of general jurisdiction according to the usual practice of that court in granting injunctions in all cases. "In such suits no restraining orders shall be issued *ex parte* but otherwise the procedure shall be governed by the provisions of Chapter III, Title VII, Part II, of the Code of Civil Procedure of the State of California." [Sec. 14b, Stats. 1929, p. 930, Supp. p. 10.]

This limitation on the power of a court that its orders must be germain to the action is no more than that it must act judicially. Examples are well stated in the opinion of this court in *Windsor v. McVeigh,* 93 U. S. 274, 282, quoted and followed in Baar v. Smith, 201 Cal. 87, 100, where the court says:

> "If, for instance, the action be upon a money demand, the court, notwithstanding its complete jurisdiction over the subject and parties, has no power

to pass judgment of imprisonment in the penitentiary upon defendant. If the action be for libel or personal tort, the court cannot order in the case a specific performance of a contract. If the action be for the possession of real property, the court is powerless to admit in the case the probate of a will."

In *Jacobsen v. Superior Court,* 192 Cal. 319, 325, so greatly relied upon by appellants, it was held that the jurisdiction of the Superior Court in equity was separate and distinct from its jurisdiction in eminent domain, and that the Superior Court in equity would not have jurisdiction by a temporary injunction to oust the owners of real property, until by an action in eminent domain the public had acquired the right. In *People v. Associated Oil Co., supra,* the Supreme Court of the State of California by taking jurisdiction of the appeal from the injunction necessarily held that the Superior Court would have jurisdiction to grant the injunction. The matter is the construction of a state statute by the courts of last resort of the state, and no Federal question is involved in such matters of procedure and practice. *(North Laramie Land Co. v. Hoffman,* 268 U. S. 277-279.) It remains, however, for this court "to inquire whether the statute as interpreted and applied by the state court denies rights guaranteed by the constitution" *(North Laramie Land Co. v. Hoffman, supra).*

These are the two Federal questions stated by the District Court of Appeal: *first,* the power of the state to prohibit the waste of natural gas, and *second,* the degree

of certainty required in the state statute to meet the requirements of "due process of law." [Statement of Appellees as to Jurisdiction on Appeal, p. 6; Opinion of District Court of Appeal, R. p. 202.] Appellees have not claimed these Federal questions were not formally raised, but moved to dismiss the appeal or affirm the judgment below upon the distinct ground that each of these questions had been so explicitly determined in this court as to no longer present a Federal question for review. (Statement of Appellees as to Jurisdiction, pp. 5-7.)

The California courts take judicial notice of scientific facts, including the progress of the natural gas and oil industries, and refresh their judicial knowledge by reference to technical papers (*People v. Associated Oil Co., supra,* Supp. pp. 33-34, 211 Cal. 106). This court follows the same rule. (*Liberty Warehouse Co. v. Burley T. G. Coop.,* 276 U. S. 71; *Schollenberger v. Pennsylvania,* 171 U. S. 1; *Jacobsen v. Massachusetts,* 197 U. S. 11.) Where the constitutionality of a statute is called in question by an application for a writ of prohibition or by other collateral attack, the court may confine itself to the statute and matters of which it takes judicial knowledge. (*Stevenson v. Colgan,* 91 Cal. 652; *Frohliger v. Richardson,* 63 Cal. App. 209, 214.) Where there has been a trial on the merits with findings, the court may also consider clear and satisfactory evidence in the record of the particular case (*Abbey Land etc. Co. v. San Mateo,* 167 Cal. 434, 437)

POINT C.

"Unreasonable Waste" Meets All of the Requirements of Certainty as a Primary Standard in the California Statute to Regulate Waste of Natural Gas as Construed and Applied by the Courts of Last Resort of That State.

> "It would seem, therefore, that the legislature has plainly adopted the standard so expressed, viz.: that gas may not be produced, under existing conditions where the production thereof so greatly exceeds the market demands therefor, in quantities exceeding a reasonable proportion to the amount of oil produced, as the standard to be applied and beyond which the production is prohibited as being an unreasonable waste of natural gas."

When this court is asked to determine whether or not there is a sufficient standard of waste prescribed by the California law to meet the requirements of the Federal Constitution, it is not the bare statute as it came from the legislature which we have to consider, but that statute interpreted, construed and applied by the courts of last resort of the state. Here we are beyond the process of a verbal construction of the legislative language to the extent that we can find aid in the decisions and opinions of the courts of last resort of the state. In the instant case we have three such opinions; the one rendered by the District Court of Appeal denying these appellants a writ of prohibition, from which this appeal is prosecuted, and two in the Supreme Court of California, the one denying a writ of supersedeas and the other sustaining the very in-

junction here questioned. It is the settled practice in the Supreme Court of California, where the subject regulated is within the scope of the police power of the state, that a charge of discrimination or lack of reasonable relation between the evil to be prevented or a charge of uncertainty in defining the line between what is allowed and what is denied must be supported by facts in the record sufficient to overcome the general presumption of constitutionality. See authorities collected in *People v. Globe Grain & Milling Co., supra.* Such also is the rule in this court. *(Lindsley v. Natural Carbonic Gas Co.,* 220 U. S. 61, 79; *Wampler v. LeCompts,* 282 U. S. 172, 174.)

The statute will be taken as it is left by the Supreme Court of the State of California with any unconstitutional paragraphs and sections disregarded by that court disregarded here *(Lindsley v. Natural Carbonic Gas Co., supra),* and the meaning affixed to the statute by that court will be the meaning considered here *(Quong Ham Wah Co. v. Industrial Accident Commission,* 255 U. S. 445). Outside of what is recognized as public utility or monopoly service "this court has held that the power of the state stopped short of interference with what are deemed to be certain indispensable requirements of the liberty (of contract) assured, notably with respect to the fixing of prices and wages." *Near v. State ex rel Olson,* No. 91, decided June 1, 1931. The statute questioned here is neither a price fixing nor a wage regulating law. The subject matter, the severance and production of natural gas, is clearly within the field of regulation under the police power, as a natural resource within the land and not yet a commodity of commerce *(Ohio Oil Co. v. In-*

diana, supra); as a statute framed and shaped to suit the economic conditions of the state, where the right of each landowner impinges upon the rights of each other landowner in the same source of supply *(Bacon v. Walker, supra);* and as an adjustment of two great industries in their relations to the people of the state *(Walls v. Midland Carbon Co., supra).* With these assumptions, we turn to an examination of the California statute as it comes from the courts of last resort of that state, to find the standard of conduct required of those operating oil and gas wells in the Santa Fe Springs oil field in respect to the waste of natural gas. The definition of a standard is directed to those engaged in the particular business regulated by the statute. Farmers and bankers are not engaged in the production of natural gas with its associated oil from pressure zones six and seven thousand feet beneath the ground. Rules and regulations and standards of conduct for the production of oil and gas are directed to those familiar with the learning in respect to these geological structures, and their handling. They are as properly chargeable with the common knowledge of the industry as bankers were held properly charged with knowledge of what was meant by "liabilities," "agencies," and by "assets of sufficient value to pay within a reasonable time in the ordinary course of business." *(State v. Bevins,* Supreme Court of Iowa, May 16, 1930, 230 N. W. 856, affirmed in this court, *Bevins v. Iowa,* 282 U. S. 815.)

Any standard necessarily has relation to the thing to be measured, and the presumed knowledge of the persons required to do the measuring. By the statute as con-

strued by its courts of last resort, the Legislature of California clearly expressed its intent to limit the quantity of gas to be blown into the air and to limit the quantity of gas to be used in bringing oil out of a well, not in absolute quantities, but in balanced proportions according to the dictionary definition of waste as "needless destruction, or useless consumption," and having regard to the correlative rights of neighboring operators. To make it plain that this definition of "waste" was intended rather than other definitions, the legislature used the characterizing adjective "unreasonable." The Supreme Court of the state has adopted this construction of the legislative language. These defendant appellants, with their wells snuggled along the boundaries of their several properties, knew that their production of both oil and gas from first to last came in part from beneath the lands of other proprietors. They state affirmatively that they were releasing to the air over 40% of the gas produced by them. In addition to this, the statute in express language served each of them with notice that upon blowing any gas into the air the operator assumed the burden of producing evidence to show that such release of gas to the air was reasonable. The rule of law applicable to oil and gas properties which gave the operator the right to draw any oil or gas from beyond the vertical planes of his holdings, *contained within itself* the limitation that "his power as an owner is absolute until the legislature shall, in the interest of the public as consumers, restrict and regulate it by statute." (*Hague v. Wheeler,* 157 Pa. 324, *Ohio Oil Co. v. Indiana,* 177 U. S. 204-205.) Each operator drawing any gas from beyond his property lines did so subject to this legislative power

inherent in the definition of the property right he was exercising. Each operator was charged with knowledge of the position of his well on the structure, of his production ratio of oil to gas, and the increase or decrease of that ratio, of the solution gas-oil ratio in the production zone, of the burden cast on him by releasing gas to the air, and of the location of his boundary lines. These things were before each appellant as a part of its knowledge when by releasing gas into the air it undertook the burden of producing evidence to controvert the *prima facie* case that its release of gas to the air constituted unreasonable and, therefore, unlawful waste. On the application for the preliminary injunction the plaintiff people went forward with affirmative proof of the great quantity of the gas released to the air in the state, in the Santa Fe Springs Field by all operators and by each of these appellants, with proof of the gas-oil ratio which would produce all the gas which could be made use of from the field and with proof of the increasing demand for the gas by domestic users, which demand would absorb all the gas if production was distributed over a few years instead of all being blown out into the air in a single year.

It may very well be that the injunction subjected to attack here did not go far enough in preventing waste of gas under the statute. In this respect it must be remembered that the injunction challenged is a preliminary injunction, subject to modification by the court, and in any event intended only to preserve the subject matter of the suit until the rights of the parties could be determined by trial. It probably would have been better, looking back from the vantage point of today if the preliminary in-

junction, after limiting the production of gas by each operator as it did, had continued and by fixed terms prohibited any production in excess of 2500 cubic feet of formation gas to a barrel of oil, as prayed for by the plaintiff people. As the pressure about each well was lowered and the gas-oil ratio increased the well should be placed on "gas lift" and production continued without increasing the production rate of *formation* gas. If the appellee equity court had jurisdiction, it is not to be subjected to a writ of prohibition because it did not sufficiently recognize the rights of the plaintiff people on the first application made. If the equity court had jurisdiction to grant an injunction, it is not to be subjected to a writ of prohibition because in the first instance, by preliminary order, it confined itself to dealing with the main or primary restraint of unreasonable waste and failed to prescribe the subdivisions of that part of the gas production which should be allowed to particular wells on each particular parcel of property of each particular operator. The duty imposed upon the equity court in the first instance did not extend beyond the necessity for its action. If the real matter for a preliminary injunction was to determine how much of the allowed release of gas should be permitted to each property holding, there is nothing in the law to prevent the equity court from letting the operators apportion their respective shares of gas among their particular wells on their particular operating land parcels, subject always to the right of the court to modify its order and make such apportionment to particular wells, should equity require it. This right of modification was particularly reserved in the order made. For an order after this

manner in an analogous situation, see the opinion of this court in *Akron C. & Y. Co. v. United States,* 261 U. S. 184, 201-203.

The District Court of Appeal of California in its opinion on the decision challenged here finds the rule for ascertaining the line between unreasonable waste and reasonable use in the decisions of the court in that state determining the right of production and use of subterranean waters, where if the "natural supply is not sufficient for all such owners, each is entitled only to his reasonable proportion of the whole, and that each may apply to the courts to restrain an injurious and unreasonable taking by another." Applying this rule the District Court of Appeal said:

> "It is argued, however, that the statute involved herein does not proceed upon the theory of correlative rights, but only upon the policy of conserving or preserving the common supply. We cannot assent to this statement or construction of the enactment. It is true that section 8b of the act declares the 'unreasonable waste of natural gas . . . to be opposed to the public interest' and 'to be unlawful,' but it is also apparent from a reading of the entire act *that unreasonable waste of gas is considered to be the production of an undue proportion of gas to the amount of oil, in the particular field involved, by one surface owner as against others, in those instances where the gas is not conveniently necessary for the 'generation of light, heat, power or other industrial purpose'.*" [*Bandini v. Superior Court,* R. p. 210.]
>
> "Sufficient has been said to effectually dispose of the remaining argument of the petitioners and demonstrate that it is founded on a misconception of the legislative intent. Their argument is in effect that

they are not producing an undue proportion of gas when the gas production is measured by the oil from one specific well. But this is obviously not the purpose of the law, as may clearly be indicated by a single illustration. Suppose a well is drilled and comes in, as what is commonly termed 'a gasser,' that is, a well which produces an insignificant quantity of oil. Conceivably such a well might drain the field of its supply of gas, leaving the oil therein unrecoverable, to the great and irreparable injury of the other surface owners. We have instanced an extreme possibility, but our interpretation of the act is that it was intended to remedy a lesser, but nevertheless unreasonable, degree of waste of the same character."]*Bandini v. Superior Court*, R. pp. 216-217.]

The Supreme Court of the state found the same definition of unreasonable waste, saying:

"It would seem, therefore, that the legislature has plainly adopted the standard so expressed, viz.: that gas may not be produced, under existing conditions where the production thereof so greatly exceeds the market demand therefor, in quantities exceeding a reasonable proportion to the amount of oil produced, as the standard to be applied and beyond which the production is prohibited as being an unreasonable waste of natural gas.

"The standard so adopted by the legislature is, we think, not objectionable as being too vague or uncertain of application. The best mean ratio, or the amount of gas which bears a reasonable proportion to the amount of oil produced, may vary for each reservoir or deposit of oil, depending on the natural characteristics above mentioned, and may, and probably does, vary for each well drilled into the same

reservoir, depending on the location of the well and other factors. Therefore, because of the many and varying conditions peculiar to each reservoir and to each well, which will bear upon a determination of what is a reasonable proportion of gas to the amount of oil produced, it may be said that it would be impossible for the legislature to frame a measure based on ratios or percentages or definite proportions which would operate without discrimination, and that what is a reasonable proportion of gas to the amount of oil produced from each well or reservoir is a matter which may be ascertained to a fair degree of certainty in each individual case. The adoption, therefore, of such a measure seems to us to be within the scope of cases upholding other legislative enactments which have employed the so-called 'rule of reason.' Citation of authority is not necessary to support the statement that the standard of reason has been applied in many cases where certainty is less capable of measurement than in the present case, for instance, in statutes prohibiting unreasonable restraints of trade, the common law rule of a reasonable use of water by riparian owners, the rule of law regulating the duty of care, etc. Instances 'where a man's fate depends on his estimating rightly, that is, as the jury subsequently estimates it, some matter of degree,' are common. (See *Nash v. United States*, 229 U. S. 373, 377.)" [*People v. Associated Oil Co., supra*, Supp. p. 36.]

"It is insisted that this appellant is being penalized because it happened to strike the top of the structure where the gas pressure was greatest. In effect this is a contention that it should be permitted to exercise a right to the prejudice of a co-equal right possessed by its neighbors in the field. This contention cannot be sustained on well known principles of law with

reference to the exercise of rights in private property generally, but it also runs counter to adjudications on the subject of gas and oil development regulations by the highest court in the land. * * *

"Whether such wastage be reasonable or unreasonable is a question of fact and should be determined in view of the necessity of one landowner to make productive use of his parcel, in view of the equal right of the adjoining owners not to be deprived of correlative production from their parcels, and in view of the right of the public to prevent the waste of that which cannot be replaced. The preliminary injunction generally is supported by the facts presented to the court." [*People v. Associated Oil Co., supra.*, Supp. pp. 49-50.]

Natural gas occupies the same position in making the subsurface field productive of oil that water occupies in making the surface field fruitful with crops. There is the same right of many landowners in a common source of the fructifying supply. There is the same variation among the owners over the common structure in the quantity of the productive agency required to bring the values into possession. There is the same reason for pro rating the allowed use of gas energy to the landowner in the one case as in the other. In *Half Moon Bay Land Co. v. Cowell,* 173 Cal. 543, the court enumerated a long list of the factors properly to be considered in apportioning the waters of a stream among the riparian owners where there was not sufficient for the needs of all. In *Burr v. McClay Rancho Water Co.*, 154 Cal. 428, the court directed the judgment below to be modified so as to protect the owners of land over the subsurface percolating water who did not desire to make drafts against excessive drafts on the common supply by those desiring to make present use.

In *Katz v. Walkinshaw,* 141 Cal. 116, the court denounced the rule contended for, of the absolute right of each landowner to produce all the subterranean waters available from his wells on the ground that the rule would leave the field "open for exploitation to every man who covets the possessions of another or the water which sustains and preserves them." The analogy of these water cases to the law of oil and gas in subterranean structures is apparent, and they were applied in the opinion of the three California decisions construing the gas conservation statute now before this court.

Mr. Chief Justice White, speaking for this court, in *Red "C" Oil Mfg. Co. v. Board of Agriculture,* 222 U. S. 379, 394, says:

> "The legislative requirement was that the illuminating oils furnished in North Carolina should be safe, pure, and afford a satisfactory light, and it was left to the board of agriculture to determine what oils would measure up to these standards. We think a sufficient primary standard was established, and that the claim that legislative powers were delegated is untenable."

This definition construed as requiring an oil reasonably safe, reasonably pure, and an oil which will furnish a reasonably satisfactory light was here held to fully meet the tests where the question was not one of price fixing.

Other authorities in this court holding similar standards sufficient where men desirous of observing the law will have little difficulty in determining what is prohibited by it are *Omaechevarria v. Idaho,* 246 U. S. 348; *United States v. Alford,* 274 U. S. 264; *United States v. Wurzbach,* 280 U. S. 396; *Pierce Oil Co. v. Texas,* 212 U. S.

86; *Gundling v. Chicago,* 177 U. S. 183. Other cases in the Supreme Court of California following the same rule in respect to a primary legislative standard are *Ex parte McManus,* 151 Cal. 331, 335; *Bank of Italy v. Johnson,* 200 Cal. 1; *Dominguez Land Corporation v. Daugherty,* 196 Cal. 468; *People v. Globe Grain & Milling Co., supra.*

The statute as construed by the Supreme Court of the state leaves to the superior courts sitting in equity the determination of "unreasonable waste" as a question of fact in each case. [*People v. Associated Oil Co., supra,* Supp. 50.] We may, therefore, disregard remedies in the statute not involved in the action pending in the appellee equity court and not involved in the proceeding here. (*Ohio River & W. R. Co. v. Ditty,* 232 U. S. 576, 594.)

The final provisions of the statute (section 21) apply only to inspections of wells, fraudulent reports and acts of similar character. (*People v. McKean,* 76 Cal. App. 119, and cases cited.)

The persons engaged in the business regulated by this statute were fully advised of the evil to which the statute was directed, their attention being particularly called to both the waste of gas by release to the air and the underground waste by excessive gas-oil ratio, so that any one of them desiring to observe the law and taking into account the position of their particular properties in relation to neighboring properties and the gas-oil ratio of the wells they were operating could determine whether or not they were within the allowed limits of reasonable waste. The decision of the courts of last resort have so clarified the statutory primary standard as to solve the most lingering

doubt in the minds of those engaged in the business of producing oil and gas in California. It is not any uncertainty in the standard of unreasonable waste which has brought these appellants to this court but a desire not to conform the operation of their wells to a very clear and definite standard of conduct which is objectionable to them.

The statute is not being enforced by penalties and arrests but by "an action in equity where the enforcement * * * awaits the final determination of the court as to validity and scope." (*Smith v. Cahoon,* 283 U. S. ...., decided in this court May 25, 1931.) The question of "unreasonable waste" is one of fact to be found in each case by the trial court, "in view of the necessity of one landowner to make productive use of his parcel, in view of the equal right of the adjoining owners not to be deprived of correlative production from their parcels, and in view of the right of the public to prevent the waste of that which cannot be replaced." [*People v. Associated Oil Co., supra,* Supp. 50.]

> "The finding of *reasonableness,* like that of undue prejudice, is a determination of a fact by a tribunal informed by experience." *Virginian R. Co. v. United States,* 272 U. S. 658, 665.

The order denying the Writ of Prohibition should be affirmed.

Respectfully submitted,

U. S. WEBB,
Attorney General of the State of California.

JAMES S. BENNETT,
Attorney for the Director of Natural Resources of the State of California.

Attorneys for Appellees.

FILE COPY

FILED

SEP 28 193

CHARLES ELMORE CR

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1931.

No. 43.

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation, and Ambassador Petroleum Company, a corporation,

Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as One of the Judges Thereof,

Appellees.

APPENDIX TO BRIEF ON MERITS BY APPELLEES.

U. S. WEBB,
Attorney General of the State of California.

JAMES S. BENNETT,
Attorney for the Director of Natural Resources of the State of California.
837 Van Nuys Bldg., Los Angeles, California,
Attorneys for Appellees.

Parker, Stone & Baird Co., Law Printers, Los Angeles.

TABLE OF CONTENTS.

PAGE

Day and Hill Report of 1912 4

Beale and Lewis Report of 1924 5

Swiggart and Bopp Report in 1924 10

Hopkins and Bacus Report in 1927 11

Miller Report in 1929 12

Methods for Increasing the Recovery from Oil Sands, Bureau of Mines Bulletin 148, Pet. Tech. 37 by J. O. Lewis, 1917 34

Gas Lift Methods of Flowing Oil Wells (California Practice) Bureau of Mines Bulletin 323, by H. C. Miller, 1930 38

Origin of the Rich Pressure of Natural Gas in the Trenton Limestone of Ohio and Indiana, by Edward Orton 51

Summary of Ernest K. Parks of "Analytical Principles of the Production of Oil and Gas and Water from Wells", by Stanley C. Herold, 1928 59

Groundwater Hydrology. Baker and Conkling, "Water Supply and Utilization", 1930 75

Crooked Holes, by Howard. June Chapter Annual Report of 1929, State Oil and Gas Supervisor 83

Ideal Cross Section Planes Along the Lines Indicated on Map Exhibit "A" Through the Santa Fe Springs Oil Field 123

IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1931.

No. 43.

Bandini Petroleum Company, a corporation; Commodore Petroleum Company, a corporation; Wilshire Oil Company, Inc., a corporation; Wilshire Annex Oil Company, a corporation, and Ambassador Petroleum Company, a corporation,

Appellants,

vs.

The Superior Court of the State of California, in and for the County of Los Angeles, and Honorable William Hazlett, as One of the Judges Thereof,

Appellees.

APPENDIX TO BRIEF ON MERITS BY APPELLEES.

To refresh the judicial knowledge of the Court in respect to matters of common knowledge among those engaged in the production of oil and gas, we present herewith quotations from encyclopedic articles, government reports and technical discussions, and for purposes of illustration annex a cross section of a plane along the lines indicated on the map exhibit in the record.

U. S. WEBB,
Attorney General of the State of California,
JAMES S. BENNETT,
Attorney for Director of Natural Resources, State of California,
Attorneys for Appellees.

Day and Hill Report in 1912.

In the introduction to a chapter from Mineral Resources of the United States, calendar year 1912, prepared under the supervision of David T. Day by B. Hill, and published as a part of the report of the Department of the Interior, U. S. Geological Survey, the authors say:

"The natural gas industry has become one of the leading industries of this country, and to the United States belongs the credit of making natural gas a commercial product. It is the best of fuels, being cleaner, more convenient, and more efficient for almost any purpose than any other fuel. Were it possible to transport natural gas as coal, petroleum, or other fuels now in use are transported, it would be the leading fuel of the world and its value would probably exceed that of any other commodity. As it is, *enormous quantities are wasted annually, quantities too great even to be estimated*, and it is with the greatest difficulty that interest can be aroused to the importance of conserving this valuable fuel and preventing the exhaustion of the fields. Although steps have been taken in some localities to prevent waste, it still goes on."

Beal and Lewis Report in 1921.

In Bulletin 194, Department of the Interior, Petroleum Technology 61, published as a report of the Bureau of Mines in 1921, by Carl H. Beal and J. O. Lewis entitled Some Principles Governing the Production of Oil Wells:

"The factors governing the production of oil are extremely variable. Many of them can be studied and their influence on production can be determined, but the effect of others can only be estimated. Most of the factors are interrelated, and practically all are affected in some way by each other. Seldom can the effect of one be isolated completely and studied. In studying these factors, therefore, it is necessary to arrive at many conclusions by observing the action of oil properties or wells where one factor is stronger than the others. Some of the factors that control the oil content in a porous reservoir influence also the amount of oil that can be recovered from the reservoir and the rate at which it may be obtained. Therefore, the study of oil production includes the investigation of those factors (1) that control the total amount of oil in the reservoir, (2) that influence the amount of recoverable oil or the ultimate production, and (3) that control the rate at which the oil may be obtained—that is, the size of the wells and their rates of decline.

"The main influences in the production of a well may be classed as natural and artificial. The chief natural influences are the oil content of the reservoir rock; the resistance to the movement of oil through the reservoir rock; the expulsive forces; and the effectiveness of these

forces in expelling the oil from the reservoir rock. The chief artificial factors are the spacing of the wells, the operation of the wells, and the application of stimulative processes.

"Oil content is determined by the thickness, porosity, extent, and sometimes, the saturation of the oil sand. The factor of resistance depends chiefly upon the porosity, size of the sand grains, and the viscosity of the oil. The expulsive forces are the dissolved and the associated compressed gases, the direct water pressure and gravity. All these factors are interrelated as regards their influence on the ultimate production of a well, and they control the manner and rate of the flow of oil to the well. This paper discusses these factors and their influence on oil content, ultimate production and decline in production. (pp. 3-4.) * * *

"The main force that expels oil from a formation is the gas compressed and dissolved in or associated with the oil. Gravitation and direct water pressure occasionally play an important part in expulsion, but by no means as important a part as gas. (p. 12.) * * *

"When two wells are drilled near each other, the gas in the sand surrounding each well starts to force the oil toward the nearest well. This area of influence keeps extending from each well until the two areas touch, then interference sets in. The time elapsing before interference begins is governed by the factors of distance, pressure, and resistance to movement within the sand. With enough time one well might affect a whole field if the sand were continuous throughout. The greater the

pressure, the sooner will interference begin between wells of a given spacing, because the oil and gas will move with greater velocity. In an open sand containing light fluid oil the resistance to movements will be slight and interference will set in rapidly. Except for the thickness of the sand, the factors that make for large initial productions make likewise for rapid interference between wells. (p. 19.) * * *

"The proper utilization of gas as an expelling agent has already been discussed; but no mention has yet been made of *the device of partly 'closing in'* the well that is occasionally employed at large wells of high initial pressure. Producing in this manner through a 'bean,' or flow nipple, would appear to the layman to prevent production; as a matter of fact, however, the ultimate production can often be thus increased. *If such wells are permitted to flow to their utmost, the pressure in* the sand around the well is so greatly reduced that not only is *the valuable expelling agent wasted,* but the reduction of pressure in the sand allows rapid incursions of water and thereby cuts off bodies of oil which may never be recovered. The principles of 'stop-cocking' wells, used in early days in Pennsylvania, can probably be used with profit as advocated by Miles Quick and others. (pp. 21-22.)"

Swigart and Beecher Report in 1923.

In Bulletin 232, Department of the Interior, Manual for Oil and Gas Operations, prepared by T. E. Swigart and C. E. Beecher, and published in 1923, the authors say:

"The conservation of natural resources, therefore, can not be interpreted as nonuse, but as *use with minimum waste*. A greater gift to posterity than undeveloped supplies of raw minerals is the advanced civilization made possible by the thoughtful use of a necessary portion of these minerals.

"In the United States much of the mineral wealth is privately owned. Unfortunately all these owners have not learned the lesson of modern civilization—that private ownership is in reality public trust and that the owner's right to do as he pleases, even to squander natural resources, can not and will not be tolerated indefinitely by society.

"No one will deny that the oil and gas industry has been *wastefully operated*. Much of the *waste probably could have been avoided*, although critics must concede that the hazardous nature of the industry and lack of operating experience that could be gained only by time are partly responsible. Little good will come of deploring past errors, but great good may result from studying the *causes of these wastes* and their future prevention.

"The American petroleum industry is now in its sixty-fourth year. During this time recovery methods have been almost revolutionized. When conducted properly the best practice of today permits little waste of oil and gas." (pp. 2-3.)

"If more gas than is needed is used for producing oil, a *direct waste of gas* and an indirect waste of oil result,

as so-called 'dead oil' that can never be recovered by ordinary producing methods is left underground in the oil sand. To recover this oil would necessitate costly artificial methods which some day may include mining of the sands. Lewis has estimated that ordinarily from 80 to 90 per cent of the original oil in an oil sand is left underground when a well is abandoned. If, by new methods of controlling the flow of gas, this percentage could be reduced by 10 or 20 per cent (and it seems reasonable to believe that even greater reductions may be possible), the benefits from increased oil recovery can not be overlooked. For this reason, if an operator permits more gas to flow into the well than is needed to bring the oil into the hole, he is wasting a commodity that the Government is anxious to conserve.

"Swigart and Bopp found that when handled in different ways, the pumping wells upon which they experimented would produce varying amounts of gas with the oil. A computed factor, termed the 'gas factor of oil production,' which in reality was the number of cubic feet of gas produced with a barrel of oil, was used as the measure of efficiency in producing oil in those experiments. *Thus, the smaller the gas factor of oil production,* the smaller would be the quantity of gas used in producing each barrel of oil, the slower the decline in rock pressure and depletion of the gas, and, consequently, *the greater the ultimate quantity of oil that each well will produce.* (p. 89.) * * *

"The number of cubic feet of gas produced with each barrel of oil is the true measure of efficiency of production of a well, because this factor takes into account both oil and gas productions. *The most efficient well is the one operated so as to produce the minimum amount of gas per barrel of oil."* (p. 92.)

Swigart and Bopp Report in 1924.

Technical Paper 322, Department of the Interior, published in 1924, prepared by T. E. Swigart and C. R. Bopp, under the title of Experiments in the Use of Back Pressures on Oil Wells:

"Few accurate records of the oil and gas production of wells have been kept by oil companies and the average amount of gas that might be expected to accompany each barrel of oil under fairly good operating conditions is not known for all properties. (p. 42.) * * *

"In the new Santa Fe Springs field, Southern California, one 2,500-barrel flowing well produced 684 cubic feet of gas per barrel and another, 3,100-barrel flowing well produced 943 cubic feet per barrel of oil. The flowing of these wells was restricted by chokers (flow nipples). (p. 43.) * * *

"Engineers have agreed that both absorbed and free gas, if free gas is present, assist oil to migrate from outlying parts of a reservoir to a well. The greater the rock pressure and consequently the greater the amount of natural gas in a given reservoir, the greater will be the ultimate recovery of oil from a well. Experience has shown that relatively small amounts of oil are recovered from a well after its gas pressure has declined very low.

"Methods that permit oil to be extracted from natural underground reservoirs with a *minimum amount of gas per unit of oil will insure the greatest ultimate recovery of oil.* Operating methods that permit or encourage the *escape of more gas* than the minimum amount required to bring each unit of oil into the hole *will lessen the amount of oil that may be recovered ultimately.*" (p. 58.)

Hopkins and Backus Report in 1927.

Department of Commerce publications, Mineral Resources of the United States, 1927, Part II, pages 129-137, under which subject Natural Gas by G. R. Hopkins and H. Backus:

"The relative rank of the large natural gas producing states was materially changed in 1927. Oklahoma retained first place, Texas advanced from fourth to second place, and Louisiana from fifth to fourth. *California dropped from second to third place and displaced West Virginia which dropped to fifth place.* The output in Oklahoma increased 14 per cent in 1927, chiefly as the result of production incidental to the intensive drilling for oil at Seminole. Texas showed the largest increase in output—45 per cent—of all the major gas-producing states; as in Oklahoma, this increase was due to oil development, particularly that in the Panhandle.

"The total consumption of natural gas (including residue gas from natural gasoline plants) by industrial users in 1927 amount to 1,149,208,000,000 cubic feet, an increase over 1926 of 12 per cent; this total was divided about equally between field use (that is, for drilling, pumping, and operating gasoline recovery plants) and other industrial uses (including gas burned in making carbon black and gas used by manufacturing establishments)." (pp. 129-130.)

Reprint From Report of H. C. Miller on Function of Natural Gas in the Production of Oil For the U. S. Bureau of Mines and the American Petroleum Institute, 1929.

Reservoirs of Oil and Gas.

(18) Reservoirs yielding oil and gas are generally found in sedimentary rocks. In a few recorded instances oil has been found in igneous and crystalline rocks, though generally not in sufficient amounts to be important commercially. Most of the oil produced in the United States is found in porous, sandy strata varying in texture from fine-grained sandstone to conglomerate. These rocks are termed "sands." Considerable oil is also found in limestone, and a small amount is produced from fissures in shale.

The oil sands of California are loosely cemented sandstones and soft unconsolidated sands consisting of irregular and angular shaped sand grains. In Oklahoma the greater part of the oil is produced from consolidated sandstones which vary in texture from soft and friable, to hard and firm. In the Texas Panhandle oil fields much production comes from granite wash—a conglomerate composed of granite fragments that have been eroded from granite ridges and deposited along their slopes—and from overlying dolomite. Most of the oil produced in Pennsylvania and West Virginia comes from hard, fine-grained sandstones and compact conglomerates.

(19) Core samples have shown that most oil fields in California, unlike those of the Mid-Continent and Eastern districts, comprise a series of oil sands, sandy shales that may bear oil, and shales. These strata may have a thick-

ness of a few feet to as much as 2,000 or 3,000 feet. Frequently, wells in the California fields drain a zone several hundred or more feet in thickness.

Not only are the productive zones of varying thickness, but their porosities differ and sometimes are as high as almost 40 per cent. In contrast to this, the porosity of some of the dense, fine-grained sandstones from which oil is produced in Pennsylvania is as low as 7.5 per cent.

Each producing sand in the average deep well in California may have a different texture, and the degree of saturation is seldom the same in any two producing horizons. Formation pressures are not the same in the various producing zones; because of the great difference in the depth of the individual sands in different wells, caused by the pronounced dip of the formations, each sand may even have different pressures in various parts of the same field.

The characteristics of the oil and gas found in the various producing sands in a California well and the relative proportions of gas and oil generally differ. Even the gravity of the oil in the upper and lower sands in single wells shows a considerable range. In California, also, lenticular sands and shales are common, and although some of these might be isolated from water, nearly all the oil sands are flanked by edge water.

In general, oil reservoirs may be divided into three types, which differ as to nature and origin and which have important bearing on the manner in which the oil is yielded to wells drilled into them.

(20) Probably the most common type of reservoir, which may be called the *pore* type, is that in which the oil is

contained in minute pores in the reservoir rock. Sandstone or sand is the most common reservoir of the pore type. Limestone and dolomite reservoirs are of the pore type in some instances.

Other reservoirs are of the *cavernous* type, in which the porosity is in the form of larger or smaller caverns or solution channels such as are very commonly formed in soluble rocks like limestone, dolomite, or salt. Limestones which have been exposed to erosion and later buried have produced many oil reservoirs of the cavernous type. The solution channels may vary from minute channels honeycombing the rock to caverns large enough to permit drilling tools to drop several feet when they are struck.

The third or *fissure* type of reservoir is that in which the porosity is due to open fissures in what may otherwise be impervious rocks, such as shale or impervious limestone.

In their effect on the behavior of a well drilled into them, the reservoirs of the cavernous type and those of the fissure type may be grouped together, because in both the openings are relatively large, and the flow of oil through them is relatively free and is not subjected to serious interference by the action of capillarity.

Status of Oil in Reservoir Rocks.

Oil exists in its undisturbed reservoir rocks under a pressure which generally corresponds rather closely with that of a column of water of a height equal to the depth of the reservoir below the surface. This pressure is undoubtedly hydrostatic. In some instances the pressure

may be more or less than hydrostatic, but these instances are believed to be due to special conditions.

The relations of oil, gas, and water in various reservoirs differ widely and have the greatest influence on the manner in which the oil is produced when the reservoirs are tapped. In some reservoirs there is little gas and the oil is backed up by water in hydrostatic connection with it, so that as the oil is produced at the wells the water follows up in its place. Such wells yield their oil by steady flow, which may continue at a fairly uniform rate for a considerable time, or even until most of the oil has been produced. The water acts as a natural water drive, and is thought in many cases, to cause a high percentage extraction of the oil.

(21) In some reservoirs the oil pool is not backed by water in hydrostatic connection with it, so that only the expansive force of the gas associated with or dissolved in the oil is available to force it out to the well. The recovery of oil by natural means from such a reservoir depends mainly upon the action of the expanding gas in driving oil to the well and in carrying it to the well in the form of films surrounding the gas bubbles. When the gas energy has been exhausted, the oil still remaining in the sand, which must necessarily be a large proportion of the original amount remains irrecoverable except by other than natural means. When a reservoir of this type at great depth and under correspondingly great pressure is first tapped, the effect of the expanding gas is almost like that of an explosion, and spectacular gusher wells are the result.

In some instances the oil in the reservoirs is backed by water in hydrostatic connection with it and also contains free and dissolved gas under high pressure. In such cases the results of tapping the reservoir combine the spectacular gusher production of the gas expansion type with the sustained later production characteristic of hydrostatic water drive.

The type of reservoir also exerts great and characteristic effects on the behavior of wells tapping it. Reservoirs of the pore type yield wells of relatively moderate initial production, gradual decline, and long life—results of the difficulty of movement of the oil through the minute pores in which it is held in the reservoir rock. Reservoirs of the cavernous type yield wells of high initial production and characteristically rapid decline. Since the caverns or solution channels in which the oil occurs are large enough to permit free movement, the oil is produced rapidly and exhausted rapidly. (22) Interference of wells is common; early wells in the field have enormous advantages over later ones and spotty distribution of large and small wells is also common. Shooting of small wells has been known to result in large production caused by breaking of the shot into channels not tapped by the well bore.

Fields producing from limestone or dolomite, from salt dome cap rock, and from fissures in shale commonly show the characteristics outlined above.

In planning methods of operation to secure the greatest percentage of oil extraction from a reservoir and methods of recovering oil from depleted fields, the nature of the reservoir—whether of the pore, cavernous, or fissure type

—and the nature of the force driving the oil to the wells—whether gas expansion alone, water drive alone or a combination of the two—are vitally important considerations. Methods which are effective with one type of reservoir or of driving agent are likely to be entirely inadequate under other reservoir conditions.

Capacity of Sands for Storing Oil.

Porosity is the ration of effective pore space to the volume of sand and therefore usually represents the capacity of sand for storing oil. According to Melcher[3] of the U. S. Geological Survey, "the pore space can be divided into two kinds, the total pore space and the effective pore space. The total pore space is the total interstitial space and includes not only the communicating pores, but any isolated pores that may exist. The *effective pore space,* on the other hand, is relative, depending on such factors as the consitution of the liquid, the size of the pores, the material of the rock, temperature, pressure, and other conditions."

(23) Production men are interested mainly in the effective pore space of reservoir rocks, since oil trapped in isolated pores can rarely, if ever, be recovered.

Oil sand composed of spherical grains of uniform size will have more pore space between grains than one composed of grains of many sizes and irregular shapes. Where the grains are not of uniform size, the smaller grains may fill the interstices between the larger grains and reduce the porosity. It is a mistake to assume that

---

[3] Melcher, A. F., Determination of Pore Space of Oil and Gas Sands: Trans. A. I. M. E., vol. 65, p. 469, 1921.

because a sand has high porosity it will yield its oil readily and ultimate recovery will be high. The size and arrangement of the pore spaces have a marked influence on the rate of movement of oil through the sand. Oil will flow more readily in sands with large intercommunicating pore spaces than in so-called "tight sands" where the pore spaces may be so small that adhesion and capillary attraction retard the movement of the oil, even though the porosity may be greater. If the explusive forces in a low-porosity sand are high and the sand is of coarse grain with the pore spaces in communication, ultimate production may be relatively higher than from a high-porosity sand. On the other hand, when the oil is of low gravity and high viscosity, relatively higher recoveries will be had from sands of high porosity than from those in which the volume of the pore space is less.

Movement of Gas and Oil Through Reservoir Rocks.

(26) A reservoir of porous formations containing oil and gas has definite dimensions and is charged with a given amount of oil and gas under a certain pressure before equilibrium within the reservoir is disturbed either by natural causes or drilling. No appreciable amounts of oil and gas are added to a reservoir by natural means during the productive life of a field, nor is there an increase in the original reservoir pressure due to natural causes.

In their original state, in an undrilled or virgin oil field, the several hydrocarbons that comprise natural gas under surface conditions of temperature and pressure may be considered as existing in four separate phases; (1) dissolved gas in the oil, (2) free gas mingled in the pore

spaces with the oil, or collected above it in structurally high parts of the reservoir formation, (3) gas in the liquid phase, and (4) absorbed gas.

Since the reservoir pressure in many oil fields is well above the critical pressure (see p. 240) of some of the constituents of natural gas, it is certain that some hydrocarbons that are gases at atmospheric pressure and temperature are liquids in the reservoir. Natural gas is a mixture of methane and heavier hydrocarbons, some of which liquefy at the pressures found in oil structures. Above their critical temperature, however, gases cannot be liquefied by pressure. Methane, for instance, could not be liquefied by any pressure in a well because the temperature in wells is never as low as its critical temperature, and ethane can be liquefied only where the temperature is below 95° F. All other gases in natural gas may easily exist as liquids in reservoir formations.

Table 2 gives the critical temperatures and pressures of a few of the methane series of hydrocarbons found in petroleum.

The principal source of inherent energy contained in an oil reservoir during its early life is the expansive force of the gas associated with the oil. Oil men agree, and laboratory and field experiments have definitely established the fact, that most oil fields have become depleted not on account of the exhaustion of the oil in the reservoir, but because of the depletion of the gas pressure. Laboratory experiments,

TABLE 2—CRITICAL TEMPERATURES AND PRESSURES OF (27) VARIOUS HYDROCARBON GASES.*

	Critical Temperatures F.	Critical Pressures, pounds per square inch
Methane	—139.9	736.5
Ethane	95.0	665.8
Propane	206.6	662.8
Butane	307.4	522.0
Pentane	387.0	486.6
Hexane	454.1	441.9
Heptane	512.3	394.8
Octane	565.5	371.2

followed by experiments in various oil fields and especially in areas where rejuvenation methods are being applied, substantiate the fact that ordinarily the recovery of oil from sands through the propulsive force of the gas dissolved in the oil has been on the average only 15 to 20 per cent of the oil originally contained in the sand. Cores from depleted oil sands in the Bradford field in Pennsylvania showed that at least 64 per cent of the original oil was retained in the sand after ordinary pumping methods had been followed by a water drive. Data on the Pechelbronn mine in Alsace, France, indicate that only 16.7 per cent of the original oil was secured by production through oil wells by ordinary pumping methods.

(28) Experienced oil men and engineers concur that modern improved production methods, as for example the holding of back pressure on flowing and pumping wells, and the scientific production of oil result in the recovery of a

*Day, David T., Handbook of the Petroleum Industry: Vol. I, John Wiley & Sons, Inc., 1922, p. 730.

greater percentage of oil than was possible by former less efficient methods. Certain controlled experiments[6] on oil recovery conducted by engineers of the Bureau of Mines show 24 to 33 per cent recovery of oil from sand for 500 pounds initial gas pressure and a recovery varying from 30 to 43 per cent when the initial gas pressure was 1,000 pounds per square inch. The results of these experiments "indicate that the percentage recoveries of oil originally occuring in sands at different initial gas pressures may be somewhat higher than has been supposed by some engineers."

It is recognized that water associated with oil may materially aid in the drainage of oil from reservoir sands. Water is especially active as a propulsive force when the pore spaces in the sand are of capillary size since water has about three times as much force of surface tension as oil. Edge water, motivated by hydrostatic pressure, acts as a natural water drive in some fields. The effect of edge water is especially noticeable in certain fields where the gas pressure has been dissipated and the drainage of oil to wells ahead of the water "wave" continues at a rate which make production profitable.

Edge water, if allowed to encroach too rapidly, may bypass the less permeable lenses filled with oil. However, where its rate of encroachment is controlled by back pressure or other production methods, the effect of edge water may be advantageous in flushing the sands and maintaining a pressure on the oil in the sands.

---

[6] Mills, R. Van A., Chalmers, Joseph, and Desmond, D. D., Oil Recovery Investigations of the Petroleum Experiment Station of the U. S. Bureau of Mines: A. I. M. E. Technical Paper 144, p. 26, 1926.

(29) Top water, or bottom water, in oil reservoirs is usually considered detrimental to the efficient recovery of oil from reservoir sands. The effect of such waters in driving oil away from wells and entrapping it in the tighter and less permeable sands is due to the lower viscosity and greater surface tension of the water and to the selective permeability of the sands which results in greater freedom of movement of water than oil. It is believed that top and bottom waters enter the channels already open or partially depleted of oil and isolate the less permeable sands, sealing quantities of oil in these lenses and forever preventing its recovery.

Once a sand or portion of a sand becomes flooded, it is desirable to exclude it from among those sands being produced, since the greater mobility of the water will soon enable it to drown out the oil in other sands unless they are under much higher pressure than the water.

The force of gravity is a factor of some importance in the recovery of oil in fields where the producing strata are thick or steeply inclined, but at best it is a comparatively slow-acting force. During the early life of fields in the United States it is improbable that gravitation is of much importance as a factor in the drainage of oil from sands, because the dips of most of the oil-producing formations are relatively low and the sands are irregular in texture and bedding.

Gas pressure, water pressure, and gravity are usually present in the same reservoir.

(37) There is no doubt in the minds of oil men and engineers that the predominant expulsive force that drives oil to wells is the energy stored in the compressed gas

absorbed in or associated with the oil. Admitting that natural gas is usually the most important factor in oil recovery, its control in order to cause it to do the most work in driving oil from the sand to the well is of utmost importance; every possible means should be taken to conserve the gas pressure and prevent its dissipation. Certainly the operator should be able to control the efficiency of the work of natural gas to a greater extent and with far greater effect on the economic ultimate recovery of oil from the sand than he can the efficiency of water and gravity.

Resistance to Flow of Oil Through Sands.

As soon as a well is drilled in and oil starts to flow from the sand, the condition in the reservoir undergoes a change. The reduction in pressure permits the gas to come out of solution in the form of minute bubbles, and as the pressure is reduced further, the expansion of these bubbles forces part of the oil through the sand to the well. However, the following and other factors tend to retard the movement of oil toward the well: (a) The increasing viscosity resulting when gas comes out of solution in oil, (b) the surface tension of the oil film on gas bubbles, (c) the distortion of these bubbles in passing through the pore space interstices, and (d) adhesion. At (38) any given time during the life of the well, a certain amount of energy is required to overcome these resistances and cause the oil to flow to the well. The expenditure of original gas in excess of that required results in a reduced ultimate oil recovery, or requires that a proportionally larger amount of energy be supplied, unless replaced by artificial means, to produce maximum ultimate recovery.

It is generally agreed by production engineers that the amount of oil recovered from a given reservoir is inversely proportional to the recovery gas-oil ratio. The problem of the operator then is to use efficiently the store of natural-gas energy, making each foot of gas do the maximum amount of work in moving the oil through the formations and to the wells.

The forces resisting the flow of oil toward wells may be divided into two classes—internal and external. Internal resistances are: (a) The result of the viscosity of the oil itself, increased doubtless in some cases by the presence of finely divided shale particles or colloidal silica which often manifest themselves later as emulsifying agents, and (b) the phenomena known as the Jamin effect, wherein the resistance is increased by the surface tension of the oil film around the gas bubble. To force the bubble through an aperture smaller than itself, it must be distorted from a true sphere; such distortion is resisted by the surface tension of the oil film, and work must be done to overcome this resistance.

External resistance to flow is dependent on the character of the sand, its fineness, uniformity, sharpness, clearness of grain faces, and presence or absence of cementing material all of which affect the shape, size, and smoothness of the channels through which the oil must move. The external resistance varies with the rapidity at which the oil column is moving at some power, other than the first power, of the velocity. The rate of production therefore seriously affects the amount of energy consumed per barrel of oil in overcoming external resistance to flow, and likewise affects the amount of gas which must be expanded to furnish this energy.

(39) Adhesion of the oil to the walls of the sand channels, when such channels are sufficiently small, gives rise to capillary resistance. The exact magnitude and importance of capillary resistance under ordinary subsurface conditions are difficult even to estimate. That it is a resistance at least worthy of consideration and study is unquestioned. It is believed that capillarity is an important factor in preventing the separation of oil and gas in a porous stratum while that stratum is in a static condition. Furthermore, the sealing of the pore spaces with oil by capillary action may prevent by-passing of the gas when conditions are no longer static but dynamic.

Factors Affecting Changes in Resistance to Flow.

The effect of changing underground conditions on the several resistances to flow is worthy of consideration. Changes which, among others, are important are those of pressure, temperature, and rate of flow. Reduction in pressure allows the free gas, if any, to expand, liquefied hydrocarbons to change from the liquid to the vapor state, and by reducing the solubility of gas in the oil causes some of the gas to come out of solution. All of these changes increase the size and number of gas bubbles in the oil; increase the Jamin effect, both by multiplying the number of bubbles and intensifying the surface tension of the oil; and increase the viscosity of the oil through the escape of dissolved gas. Each of these separate effects tends to add to the amount of work necessary to move a barrel of oil a given distance. Therefore, it is safe to state that the higher the average pressure which can be kept effective on the formation, the more readily the oil will move toward the well.

Decrease of underground temperatures, which might result from sudden release of pressure on the sand and the consequent rapid expansion of gas, is commonly accepted as being relatively unimportant in its effect on (40) resistance to flow. Lowered temperature would result in greater solubility of gas, which would tend to lower the viscosity and surface tension; this effect, however, would be offset by the direct temperature effect on the viscosity and surface tension, both of which are increased at lower temperatures. Certain oils have the viscosity increased greatly by lowered temperatures, and others precipitate waxes or waxlike solids which increase production difficulties greatly. Any change in operating methods that would result in lowered underground temperatures is therefore to be avoided.

Changes in the rate of flow affect the efficiency of production by increasing the energy consumed in overcoming internal and external resistance to movement of oil through the sands. A rate of flow is therefore desired which will balance efficient use of the gas energy against the operator's desire for high productivity of wells.

Effect of Dissolved Gas Upon the Viscosity and Surface Tension of Crude Oil.

The role that natural gas plays in the production of oil is twofold; first, natural gas in solution in petroleum imparts desirable physical properties to the crude for its efficient migration, and second, the force of expansion of natural gas, as discussed in the section on the movement of gas and oil through reservoir sands, acts as a propellant in moving oil through reservoir sands to the well which is the point of lowest pressure.

From laboratory experiments it is found that gas in solution in crude oil decreases the viscosity and surface tension, thus imparting physical properties to the oil which are conducive to the utilization of less energy in causing it to flow. It is believed that the results found in the laboratory have their application to conditions as they exist in the reservoir sands. A knowledge of the results of these laboratory tests is essential, therefore, to an understanding of the desirable physical effects that (41) natural gas in solution has on petroleum.

Reduction of Viscosity by Dissolved Gas.

The amount of gas dissolved in a crude oil is directly proportional to the gas pressure. Beecher and Parkhurst[7] found that by saturating a given crude with natural gas at 500 pounds pressure per square inch and 70° F., the viscosity was decreased 50 per cent. It is therefore within the bounds of reason to assume that at a pressure of 1,800 pounds per square inch, corresponding to a depth of about 4,100 feet, enough gas may be dissolved in the crude in an oil reservoir to reduce the viscosity to that of kerosene.

Efficient Use of Natural-Gas Energy.

(44) As has been shown, work is necessary to move oil against the combined effects of frictional resistance of reservoir formation material, viscosity of oil, and gas-bubble resistance. Since the principal source of energy to perform this work is the expansion of the gas that ac-

[7] Beecher, C. E., and Parkhurst, I. P., Effect of Dissolved Gas Upon Viscosity and Surface Tension of Crude Oil: A. I. M. E., Petroleum Development and Technology in 1926, p. 51.

companies the oil, the amount of gas produced with a barrel of oil has come to be considered as a measure of the amount of work being done underground; the efficiency of wells and properties, therefore, are being compared on the basis of their gas-oil ratios or quantities of gas produced per barrel of oil. Such a comparison is fair only so long as the reservoir pressure conditions are the same, since the amount of work done varies not simply with the quantity of gas, but as the product of this quantity and the reduction in pressure; or, by the number of times the gas has expanded in passing from the formation pressure to its final pressure where it discharges its load of oil into the casing.

(45) Pressure is as fundamental as volume. Obviously, the force exerted by 1,000 cubic feet of gas under, say, 100 pounds per square inch pressure is far less than the force exerted by the same quantity of gas under 1,000 pounds per square inch pressure. The fundamental factor is the combination of pressure and volume, which together equal the force exerted by the gas. It is this force that is important. In comparing producing methods at the same well, the volume alone can be used as the index, but comparison of recovery gas-oil ratios between fields or even wells in different zones or areas in the same field can be made only by taking into consideration the differences in reservoir pressures, depths, and other factors that affect the amount of work accomplished by 1 cubic foot of gas.

(47) For every well there is a critical differential pressure and a critical velocity induced by this pressure which will result in the most economical rate of flow of oil to the well. The problem for the operator is to control the back pressure on each well so that the gas escaping from

the reservoir sands will carry the maximum amount of oil to the well. Experience has shown that it is difficult generally to get operators to hold anywhere near enough back pressure on their wells for maximum utilization of formation gas energy. Unless the gas is used efficiently in moving oil to the well, ultimate oil recovery from the reservoir sands will be reduced proportionally.

From the preceding discussion it is evident that the most efficient method of gas utilization is one where the gas moves with the oil so that the gas-oil ratio approaches as nearly as possible the amount of gas dissolved in the oil at the existing reservoir pressure; also, that the most efficient theoretical differential in pressure would be the one which gives this theoretical low gas-oil ratio.

(232) When gases and volatile hydrocarbons are removed from the solution, the physical properties of the latter are changed. The resulting liquid has greater density, greater viscosity, and greater surface tension than when the light hydrocarbons were present in larger proportion. The extent of these changes will depend, of course, upon the amounts removed from solution, which in turn depend upon the decrease of pressure.

In the formation below the surface of the earth, the petroleum is found dispersed, throughout the small interstices of porous "oil sands" saturated with gas under pressure which may be as high as 100 atmospheres or even higher. When a well is drilled into this formation and fluid is allowed to flow out, the pressure at the intake of the well is decreased. This immediately causes a pressure gradient in the formation which tends to force fluids toward the well intake where the pressure is lower.

Consider what will happen as this process is continued. The pressure throughout the formation gradually decreases. The possible pressure gradient from the remote parts of the formation toward the well is decreased, and therefore the available energy for driving the fluids to the well is lowered. The lowered pressure allows dissolved gas to separate from the liquid petroleum in proportion to the decrease of pressure, and the gas forms minute bubbles in the oil. These bubbles grow in size and often join to form larger ones. The oil, to reach the well, must flow through fine capillary pores between the sand grains. The presence of these gas bubbles, which offer considerable resistance to the distortion necessary to force them through the capillaries, offers a serious impediment to the desired flow of oil.

Another disadvantage of the release of dissolved gas lies in the resulting increase in viscosity of the oil. Increased viscosity has the effect of adding greatly to the difficulty of flow toward the well, requiring a greater pressure gradient for a given flow rate and thus absorbing more of the available energy than is desirable.

(233) Still another troublesome result of gas coming out of solution from the oil is the increase in surface tension of the liquid and the greater tendency to hold tight to the capillary sand pores. This condition involves the expenditure of more energy to remove the oil from the sand and increases the proportion of the oil which cannot be economically recovered. This unrecovered fraction is large at best.

As is easily seen, the release of dissolved gas in the formation is unfortunate and should be avoided as much

as is feasible. Some decrease in pressure in the formation is necessary to cause oil to flow to the well inlet. There are two ways of getting a given flow rate to the well: First, use a low pressure gradient, thus holding gas in solution and taking advantage of lower viscosity and adhesion and the presence of fewer and smaller gas bubbles to counterbalance the lower energy availability; second, let the pressure at the well inlet drop low, allowing greater quantities of gas to escape and opposing much greater resistance to flow but relying upon the greater pressure gradient to supply the additional energy required. It is not difficult to decide which of these two procedures will give the largest ultimate yield of oil with the least expenditure of energy from the formation. Unfortunately, the second method has been very commonly used.

(246) **Function of Gas in the Reservoir.**

(a) Gas associated with or in contact with the oil in reservoir rocks provides the propulsive energy which moves oil to the wells. All petroleum engineers are agreed that where gas provides this energy the exhaustion of oil from oil-bearing formations is due more to depletion of the gas than to actual exhaustion of oil. Water and gravity also play a part in oil recovery, but gas usually provides the main force which moves oil through the reservoir rocks to the wells. Because of the influence of gas in the production of oil, and by reason of its importance, the common supply should be controlled in the common interest.

(b) The amount of gas associated with a barrel of oil depends largely upon pressure. Gas is commonly believed to exist in four phases in the reservoir:

(1) As free gas in higher portions of the structure.

(2) As a liquid where pressure is sufficiently high.

(3) In solution in the heavier liquid hydrocarbons present.

(4) Absorbed at the interfacial surfaces.

(c) Natural gas in solution lowers the viscosity and surface tension of the oil in the reservoir, thereby reducing the resistance to movement of oil in the sand toward the well. The volume of gas held in solution in oil is in direct proportion to the pressure, if other conditions (247) remain constant. Holding as much of the gas in solution in the oil as possible will therefore keep the oil more fluid, and through lowered surface tension and the lessened growth of bubbles will thereby reduce that resistance to flow which is known as the Jamin effect.

(d) Temperature measurements, where available, indicate that the production of oil and gas sometimes reduces the original formation temperature. Such temperature changes as do occur probably are localized to the immediate vicinity of the well, possibly almost wholly within the well.

(e) Gas injection compensates to a degree for some of the harmful effects of producing oil with high gas-oil ratios, but it cannot reproduce original conditions in the reservoir. The factors considered of greatest importance are:

1. Time.
2. Lack of agitation.
3. Slow rate of diffusion.
4. Inability to replace absorbed gas.

5. Change in character of gas returned due to extraction of gasoline.
6. Relative small number of injection wells as compared to producing wells.
7. Water encroachment.
8. Differential permeability (the inability to direct the gas to the particular sand desired).

(f) *Repressuring with gases other than the original gas. The use of air is considered undesirable where the oil is asphaltic, or contains many unsaturated compounds which are readily oxidizable.* Air is less soluble and does not reduce the viscosity or surface tension as does natural gas. Corrosion of casing and tubing, particularly if the oil be high in sulfur, is almost sure to result from the use of air as a substitute for gas. Also, compressed air vitiates the gas still remaining in the reservoir rocks, and as the supply of gas for fuel is usually low in districts where air is used for repressuring, the *returned air-gas mixture is often explosive and unfit for fuel purposes.*

(248) (g) There appears to be a lack of uniformity of opinion as to the character of flow in the sands. Data and opinions indicate that there may be viscous flow, turbulent flow, or a progressive mixture of the two, depending to some extent upon time and relative position in the reservoir. Other factors which are considered important in their influence upon the type of flow are the character of the oil, the amount of gas present, the pressure, and the size of the pore spaces through which the oil moves.

Methods for Increasing the Recovery From Oil Sands. Lewis, 1917. Petroleum Tech. 37, Bulletin 148, Bureau of Mines.

How Oil Is Retained in the Sand.

(21) The expulsion of the oil from the sand is retarded and opposed by viscosity, capillarity, adhesion, and frictional resistance in the sand. It has been shown that viscosity is greatest for heavy oils and at low temperatures, and how the other factors are most important in fine sands of low porosity, especially if thinly or irregularly bedded. Frictional resistance is further increased by the sands being clogged by the deposition of waxy materials from oils of paraffin base or by the accumulation of silty materials or "floating sand" in the pores of the sands. A portion of the energy released from the expanding gas is used up in overcoming the resistance from these causes, but in addition much of the energy is wasted, owing to the escape of gas without doing work. There is a marked tendency for the gas to slip by the oil through the larger pores of the sand and through parts of the sand body offering least resistance without expending much energy in actually moving oil, this tendency increasing enormously with the removal of the oil, as shown by the experiment cited previously.

It is likely that in sands where there is the greatest opposition to the expulsion of oil—that is, in fine sands of low porosity and with heavy oils—there will be rela-

tively less waste of energy, for the gas will not be so apt to slip through the sand without moving oil. This probably explains why tight sands and heavy oils usually give wells that maintain their productions very steadily. But the more irregular the texture and the character and proportion of contents of a sand body the greater will be the waste of energy which is essentially like the "by-passing" of air in the Smith-Dunn or Marietta process that has proved to be one of the chief difficulties to overcome in the use of compressed air.

The proportion of oil recovered from an oil sand may be said to represent a balance of the energy originally stored in the oil sand with the waste of energy and the opposition to the expulsion of the oil. This might be termed the "efficiency of expulsion," and will depend not only on the natural conditions but also upon the manner in which the producer operates his wells. While the operator can not control the original conditions of energy and resistance in the sand, he can partly control the efficiency of expulsion. As it is the energy contained in the compressed and absorbed gas rather than the oil that is exhausted, it is but logical to judge the efficiency of a producing method largely by the relative quantities of gas produced with each barrel of oil. If by a change in method the producer lessens the proportion of gas with each barrel of oil, he should increase the total recovery of oil correspondingly, even if the rate of production is temporarily reduced somewhat.

Capacities of Oil Sands.

(28) From the evidence previously submitted the following figures on the porosities of oil sands are believed to be reasonable. The porosities of oil sands are much greater than the uninformed would suspect from a casual inspection of specimens, whereas the usual ways of testing the porosity lead to underestimates. There is little published information on the porosities of sands actually productive of gas or oil, but there is no reason to believe that they are less than for other sands and standstones. Indeed, as pointed out previously, the porosities of the oil-producing sandstones of the Mid-Continent and eastern fields must be greater than the figures on the building sandstones indicate. In any event, the recovery of gas shows that the estimated capacities of the oil sands, as given in the following table, can not be in gross error.

ESTIMATED AVERAGE CAPACITIES OF OIL SANDS.

	Estimated average porosity, per cent.	Capacity per acre-foot, barrels.
Appalachian field	12½	970
Illinois and Mid-Continent fields	17½	1,358
California fields	25	1,940

Actual Recovery From Oil and Gas Sands.

According to the United States Geological Survey,[a] 3,335,457,140 barrels of oil have been marketed from 329,186 oil wells in the United States up to the beginning of 1915. During 1914, 265,762,535 barrels were mar-

[a] Northrup, J. D., Petroleum; Mineral Resources U. S. for 1914, U. S. Geol. Survey, 1915, p. 889.

keted from 179,129 oil wells. It is estimated that the average well drained about 6 acres of oil land, the total (29) area being about 2,000,000 acres. The future production for the wells producing in 1914 is estimated to be not more than 1,400,000,000 barrels, making a total production of approximately 4,700,000,000 barrels, or approximately 2,350 barrels per acre, which is hardly enough to saturate an oil sand 2 feet thick of average porosity.

Statistics by the United States Geological Survey[a] show that 591,866,733,000 cubic feet of natural gas was produced and used in the United States in 1914, which does not include the enormous wastage.

---

[a] Northrup, J.D., Natural Gas; Mineral Resources U. S. for 1914, U. S. Geol. Survey, 1915, p. 749.

Gas-Lift Methods of Flowing Oil Wells (California Practice). Lewis, 1930. U. S. Department of Commerce, Bureau of Mines, Bulletin 323.

(22) To understand thoroughly the principles that underlie use of the gas lift as a means of increasing the ultimate recovery of oil from a subsurface structure one must have a knowledge of the characteristics of the sand body and of the conditions in the porous formation within an oil reservoir.

Reservoirs yielding oil and gas may occur in any porous strata. Reservoir rocks are usually sands and sandstones, porous limestones, and fractured shales. In California the reservoirs in which oil and gas have accumulated consist generally of unconsolidated sands resembling beach sands and sandy shales. The capacity of a sand for storing oil varies with the porosity of the sand, which ranges in California from 10 to 40 per cent and averages about 25 per cent. One cubic foot of sand may therefore contain 0.1 to 0.4 cubic foot of oil or, on the basis of average porosity, approximately 1.87 gallons of oil per cubic foot of oil sand.

The irregular size and shape of the pore openings in an oil sand affect materially its frictional resistance to the movement of oil and gas through it; a relatively slight difference in the texture of the sand makes a great difference in the resistance.

Crude oils (petroleums) are present in underground reservoirs as mixtures of hydrocarbons with varying chemical and physical properties. Before the drill has tapped the oil reservoir and before it has been disturbed by natural causes, gas, also of varying chemical and physical properties, is associated with the oil, either in solution in the oil or as free gas above the oil in the structurally higher parts of the natural reservoir. Data collected from various laboratory tests show that the average California crude oil of about 25° A. P. I. gravity will hold in solution slightly less than 0.2 cubic foot of natural gas per barrel of oil per pound of pressure. For practical purposes the volume of gas soluble in a unit volume of crude oil is a straight-line relation for all pressures in the range ordinarily encountered in the oil fields. Dow and Calkin [15] show that the amount of natural gas that crude oil will hold in solution depends upon pressure and temperature and upon the nature of the gas and the nature of the crude. In a particular reservoir the amount of gas held in solution by the oil depends upon the pressure and temperature in the reservoir.

Formation pressures of 1,200 pounds per square inch and greater are often found in the California oil fields where oil is obtained from depths of 4,000 feet and more. According to Dow and Calkin the volume of gas at a pressure of 1,200 pounds per square inch that may be dissolved in a barrel of average oil at 70° F. will be nearly 230 cubic feet. McCollum [16] reports a laboratory test of

[15] Dow, D. B., and Calkin, L. P., Solubility and Effects of Natural Gas and Air in Crude Oils. Repts. of Investigations, Serial 2732, Bureau of Mines, 1926, 13 pp.

[16] McCollum, C. R., California—With Especial Reference to Practical Conservation: Om. Petrol. Inst. Bull. 6, vol. 8, 1927, p. 325.

a particular California oil in which 344 cubic feet of gas was found to be soluble in 1 barrel of oil at a pressure of 1,800 pounds per square inch.

High A. P. I. gravity crudes can usually hold greater volumes of gas in solution than crudes of a lower gravity, (23) and gases with a large percentage of methane are not as soluble as those with a large percentage of ethane and the heavier hydrocarbons. Dow and Calkin found that about 13 per cent more gas dissolved in a 36° A. P. I. gravity crude than in a 25° crude at 350 pounds pressure and 70° F. and that 20 per cent more of a gas containing 39 per cent of ethane dissolved in a certain crude than of a gas containing 5.46 per cent of ethane.

There is a definite amount of gas in an undisturbed natural petroleum reservoir. As previously mentioned this gas may be in solution in the oil, it may be free gas in contact with the oil in the structurally higher parts of the reservoir, or it may occur in both phases. Before a well penetrates the oil reservoir conditions within the reservoir are in equilibrium, pressures are the same throughout; each unit volume of oil presumably has an equal volume of gas in solution, and the formation pressure and volume of gas in solution are maximum.

Nearly all wells in California, especially deep wells, are drilled with mud fluid in the hole so there will be enough back pressure to overbalance the formation pressure against the exposed face of the oil sand in the well when the bit penetrates the reservoir. The flow of petroleum and gas into the well does not usually begin until the hydrostatic head built up by the column of mud fluid in the hole is reduced sufficiently by bailing and swabbing to create a differential pressure between the oil formation

and the well. This differential pressure gradually becomes greater as the mud fluid in the well is replaced by oil and gas. The free gas in contact with the oil expands with the release of pressure within the reservoir; some of the gas in solution in the oil is liberated when the pressure is reduced and also expands with a further decline in pressure. Oil is forced into the well by continuous expansion of the gas bubbles, which are trapped in the pores of the reservoir sands, and to a smaller degree by the expansion of any free gas present above the oil. The action of gravity in moving oil to a well is so slow as to have little practical effect on the expulsion of oil from a sand.

If the gas bubbles are allowed to expand rapidly, as they do when the differential pressure between the formation and the well is large, much of the energy released by the expanding gas will be used up in overcoming the frictional resistance that opposes the expulsion of the oil from the sand. Gas is more mobile than oil, and its movement through the minute, irregular passageways between the sand grains meets with less frictional resistance. It moves toward the well, therefore, faster than oil. This movement results in a loss of energy by slippage of the gas through the oil. Rapidly expanding gas opens channels through the looser parts of the sand, through which the gas escapes to the well without expending much energy in moving oil. The expansion of the gas may be so rapid and its velocity of flow through the looser parts of the sand so great as to exclude the oil from these channels and prevent it from being carried to the well.

Maintaining high back pressure against the producing formation reduces the differential pressure between it and the well. The gas bubbles that enter the well will be small

compared with what they would be if allowed to expand at a lower pressure. Small bubbles meet little frictional resistance when traveling through the pore spaces in the sand, and little energy is consumed in distorting them as they pass through openings of irregular shapes and various sizes. Decreasing the expansion range of the gas (24) bubbles in the sand reduces the velocity of their flow toward the well, thus reducing the probability of formation of channels through which the gas may escape to the well without carrying with it or driving ahead of it a certain amount of oil. More oil per unit volume of gas is moved toward the well because decreasing the velocity of gas reduces its slippage through the oil. Maintaining high back pressure also causes the gas to remain in solution longer. The more gas an oil retains in solution the more fluid the oil, since viscosity is directly proportional to the amount of gas in solution in oil. Surface tension also decreases as the amount of gas in solution increases. Viscosity and surface tension have an important bearing on the rate of flow of oil through a porous formation and upon the energy necessary to cause flow. Limiting the size of the gas bubbles by applying back pressure against the oil sand increases the percentage of pore space about the well available for the movement of oil. This fact and the fact that gas is less likely to channel through the sands when the gas-expansion ratio is decreased permits oil to be produced with a minimum amount of gas.

The gas lift is a means by which an operator can control the back pressure on a producing formation and lessen the proportion of gas produced with each barrel of oil, thus increasing the total ultimate recovery of oil from a porous reservoir.

Back-Pressure Application in Gas-Lift Wells Tubed Below Top of Producing Formation.

(83) When a well is tubed below the top of the producing sand, the pressure against the face of the exposed sand in the well is equal to the gas pressure opposite the producing sand. A cone-shaped area of drained sand, with the apex of the cone at the lower end of the eduction tube, will theoretically exist about the well. (See fig. 33.) The base of this cone (top of oil sand) will increase in area as production continues if the bottom of the eduction tube is not raised. The gas pressure in the area of drained oil sand will equal the gas pressure in the well, and the differential pressure between the saturated oil sand and the drained sand will cause the oil to flow to the well. Decreasing the back pressure in the well will allow some of the gas that is in solution and occluded in the oil in the saturated zone to expand, driving some oil ahead as it expands and carrying a certain amount with it, due to its velocity, into the area of least resistance (the drained area). Losses due to friction in the drained area will be less than in the saturated zones and the gas will flow with increased velocity, slipping through and by-passing much of the oil that it had formerly driven into the drained area. As soon as the gas enters the drained area, the delivery of oil through the partly depleted sands to the well depends upon the carrying capacity of the gas due to its velocity.

Although the pore spaces in the drained area are filled with gas, a large percentage of the original oil contained in the sand remains attached to the sand grains. The amount of oil remaining in a depleted oil sand has been estimated by various authorities to range from 60 to 80 or more per cent of the original oil in the sand. This oil is retained by the force of adhesion on the sand grains and by

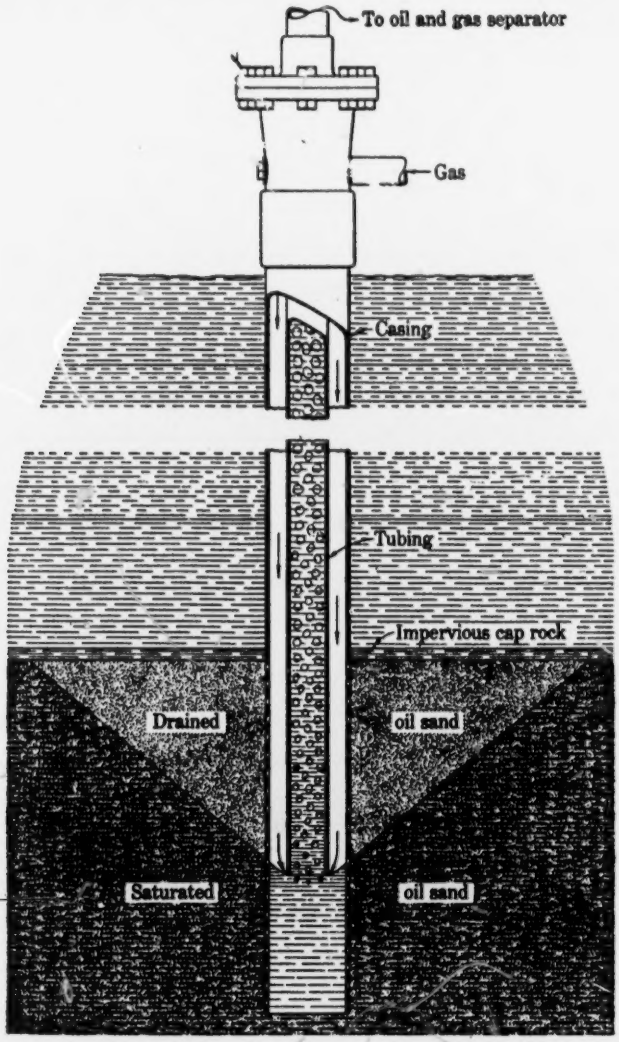


FIGURE 33.—Sketch illustrating drainage cone existing theoretically in oil sand about gas-lift well when tubed below top of sand

capillary attraction between the sand grains. A certain amount of gas is held in solution by the oil surrounding the sand grains and is released only upon the reduction of pressure. Increasing the back pressure in the well will cause some of the free gas within the sand pores to be dissolved by the adherent oil, thereby decreasing the viscosity and surface tension of the oil and rendering it more susceptible to being detached from the sand grains and carried along

(85) by the expanding gas. Increasing the back pressure, however, retards the velocity of the gas so that its capacity to carry oil is reduced. Decreasing the back pressure allows gas to come out of solution from the oil which is attached to the sand grains, causing the oil to adhere still more tenaciously to the sand grains because of its higher viscosity and surface tension. Under reduced back pressures the velocity of flow of gas through the drained sand is increased and may be such—depending upon the differential pressure—that it channels through the areas of least resistance and escapes to the well without carrying with it a proportionate amount of oil. The efficiency of expulsion of oil from a sand penetrated by a well that is tubed below the top of the producing formation depends, therefore, mainly upon the proper balance between the velocity of flow of gas through the drained area and the forces resisting the movement of oil and gas through the openings in the partly depleted sand. Experience has shown that in wells so tubed, relatively high back pressures result in low formation gas-oil ratios, indicating more efficient recovery of the oil from the sand.

The energy required for maximum efficiency of expulsion bringing about increased ultimate yield also depends partly upon the resistance to flow offered by the oil sand. Oil sands vary in texture; the size and shape of the pore spaces are not the same in all sands or in all parts of the same sand. Fine-grained sands have smaller pore spaces and offer greater resistance to the flow of oil and gas than sands composed of large, well-roundeu, smooth grains. Oils differ also in gravity, viscosity, and surface tension, and all gases do not have the same physical characteristics. Pressure conditions are not the

same in all wells or in one well, neither is the rate of gas flow constant in producing wells. Flow conditions also vary in the same sand, owing to greater formation pressures as the distance from the well increases. Farthest from the well the oil will be expelled principally by the expansion of the gas bubbles, and the expulsion of oil will be inefficient because under the existing pressure differential between adjacent sand grains the bubbles will travel toward the well incompletely expanded. The bubbles will continue to expand as they approach the well until they become so large under the lower back pressure prevailing about the well that energy will be lost in creating velocity and in distorting the bubbles as they flow toward the well.

One may see from the above discussion that the application of back pressure in gas-lift wells up to a certain point that is based upon the proper balance of forces assisting and opposing the efficiency of expulsion results in the production of oil with a low formation gas-oil ratio. A reduction or increase in back pressure below or above that giving the maximum efficiency of expulsion results in an increase in the volume of gas produced with each unit volume of oil recovered, and the operator should make every effort to flow his wells under the back pressure that will result in the production of the most oil ultimately.

The efficient utilization of the gas energy latent in the formation gas is made more difficult in many California fields in which the producing formations are composed of two or more oil zones separated from one another by impervious shale partings. A producing formation with the well tubed as represented in Figure 34 will necessitate an analysis embodying the principles just expounded. The oil produced

from zone *A*, Figure 34, will be that of a well tubed below the top of the oil sand; the recovery of oil from zone *C* will be similar to that of a well tubed above the top of the oil sand; whereas in zone *B*, both conditions will prevail. The formation pressures in the different zones usually differ so that a back pressure in the well, based on the most efficient expulsion of oil from one zone, may result in highly

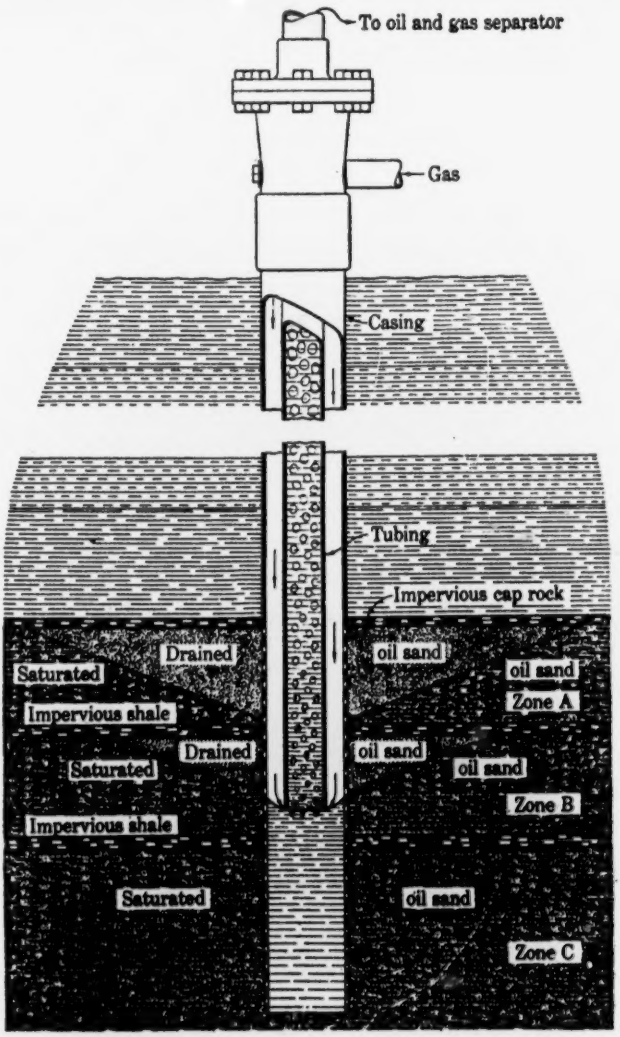


FIGURE 34.—Sketch illustrating drainage conditions in producing formation composed of three oil zones separated by impervious shale when gas-lift well is tubed into middle zone

inefficient oil recovery from the other zones. For this reason many operators tube their gas-lift wells nearly to the bottom, thus placing a high back pressure on all of the producing zones. Tubing wells low and holding a high back pressure on the producing zones may result in a temporary reduction in oil production, but if the formation gas-oil ratios are minimum the ultimate recovery of oil from the producing zones will be much greater than if less back pressure had been

(87) held against the producing formation. Other operators tube their wells opposite the producing sand previously determined as the most prolific source of oil in the well. This determination is usually made either from core samples taken when the well was drilled or from tests with tubing and a double packer of the productive capacity of different zones in the well. The packer method consists of running a string of tubing on which two packers are spaced a short distance apart. The tubing is perforated between the packers. The tubing is lowered by successive stages until the location of the most prolific oil-producing zone is found. The packers are then withdrawn and the tubing is rerun into the well and bottomed, usually at the top of the most productive zone.

No matter where the tubing is bottomed in a well that has penetrated a thick sand with numerous shale partings, experimental work in controlling the formation gas will reveal a certain back pressure under which the minimum volume of formatior gas will accompany a barrel of oil into the well.

Conclusions.

(115) The gas lift has become a recognized method of flowing oil wells. Its most valuable function is to bridge the gap of inefficient production that usually exists after natural flow in wells is no longer efficient and before production is small enough to be handled by plunger pumps. Experimentation to increase the efficiency of the gas lift when small quantities of oil are lifted has developed methods of flowing small producers by gas in direct cost competition with plunger pumps. Developments in the future may

even make it profitable to lift oil by gas in small producing wells that ordinarily are pumped by central jack plants.

Although the gas lift possesses many advantages over other lifting methods it is not a cure-all for all pumping difficulties. The gas lift will not operate successfully in all wells; even in favorable wells the use of the gas lift will not produce the desired results if it is improperly installed and operated.

Fundamental data concerning the operation of the gas lift are meager. Little is known about the velocities and resistance to flow of oil and gas mixtures in vertical pipes, the design of tubes best adapted to the upward flow of gas and oil where the gas is expanding constantly, and the rate of expansion of the gas in the eductor tube. A knowledge of these and many other data of a fundamental character is necessary to design, install, and operate gas-lift systems efficiently. Until such data are vailable experience and the ability to correctly interpret well records and underground conditions will be necessary in making gas-lift installations.

Conditions in oil wells are changing constantly, and because efficient and economical operation of the gas lift depends mainly upon the engineers' and operators' ability to meet changing conditions of pressure, rate of flow of oil and gas into the wells, and fluid levels, continual experimentation on wells is necessary. It is imperative, therefore, that accurate detailed records be kept of the

performance of the well and of changes in operating methods. Accurate measurements of the volume of gas pumped into wells and taken from wells with the oil make it possible to compute the volume of gas flowing into the well with a unit volume of oil. The formation gas-oil ratio has become a yardstick by which the efficiency of a well is measured; high ratios usually indicate that the expulsion of oil from the reservoir sands is inefficient. Every effort should be made to maintain formation gas-oil ratios low and gas-oil ratio trends at a level or minimum upward gradient if greater ultimate recovery of oil from reservoir sands is desired.

Although the technique of the gas lift is still undeveloped and fundamental data are lacking, production engineers have secured results that justify continued use of the gas lift wherever conditions are suitable. Although it is an axiom that each well is a separate problem which requires individual study and experimentation for maximum lifting efficiency, certain general hypotheses are agreed to be applicable to nearly all wells. The author has therefore attempted to point out operating facts and generalized practices in the hope that some of the time and money now wasted through duplication of experimental work, lost production, and inefficient lifting methods and practices will be saved by their use.

Origin of the Rich Pressure of Natural Gas in the Trenton Limestone of Ohio and Indiana.

By Edward Orton.

Annual Report Smithsonian Institution to the Congress, July 1, 1921, at page 155. Read before Geological Society of America, December 26, 1889.

For my own part, I have felt certain for more than two years that the rock pressure of gas in the Trenton limestone of Ohio and Indiana is hydrostatic in origin, and I have published a number of facts that seem to me to give support to this view. I find that some sagacious operators in the new gas and oil fields are coming to the same ground. They have become thoroughly satisfied by their own experiences that the root of rock pressure is to be found in the water column that stands connected with the porous rock in which the gas and oil are contained. In the present paper I desire to present to the Geological Society a few facts and conclusions bearing upon the subject.

The Data for the Hydrostatic Theory.

The first question is, What are the facts as to the rock pressures of the gas rock in question and what relations do they bear to the depths of wells and other conditions in the Trenton limestone? The answer is not as full and definite as may be expected, certainly not as may be desired. There is but one datum in the development of a gas field in which the normal gas pressure can be ascertained, and that is when the first well reaches the reservoir and releases the long-imprisoned and greatly compressed gas. But often this favorable opportunity is lost, and gauges are not applied to wells until the energy of the first flow is somewhat abated. Again, different

wells in the same field, as Findlay, for example, give different results. The wells vary with the depth at which the gas rock is found. This factor is found to be an essential one, as will presently be shown, in connection with rock pressure. Moreover, gauges are sometimes inaccurate and their errors come in to confuse the study of the subject. Furthermore, the exact depth of the wells and the exact altitude of the surface where they are located cannot be ascertained in all cases. Small errors of this sort must be provided for, and there also enters into the discussion a question as to the specific gravity of the water which is to be made the moving force of gas and oil. The water found in association with these substances is never fresh. It is always saline and often highly mineralized. The weight of fresh water to the square inch is 0.43285 pound for 1 foot in height (I use Professor Lesley's tables). The average weight of sea water is 0.445 pound to the square inch for 1 foot; but the mineral waters with which we find the Trenton limestone saturated often reach a much higher figure. An examination of several specimens shows that a column 1 foot high would weigh to the square inch 0.476 pound. In fact, some of these waters are more like bitterns, and their columns would equal or exceed 0.5 pound per foot. Bearing these several sources of ambiguity or uncertainty in mind, we can consider the records of pressure, depth, and the other factors that are accessible. The figures as to pressure have already been summarized in a preceding paragraph, but they will be repeated in an accompanying tabular statement. Before coming to this, however, let me in the briefest terms review the conditions under which gas, oil, and salt water exist in the Trenton limestone. The uppermost beds of the great Trenton for-

mation in northwestern Ohio, central and northern Indiana, Michigan, Illinois and Wisconsin, consist of a porous dolomite 5, 50, 100, or even 150 feet in thickness. Sometimes the dolomite is found in a continuous body, but oftener in interrupted beds. This part of the formation has outcrops in the Manitoulin Islands of Lake Superior and in the Galena limestone of Illinois and Wisconsin. In the gas and oil fields, it is found lying in terraces and monoclines, or flat arches, 800 to 1,500 feet below the surface; and these several features effect the separation of the varied contents of the porous rock. The boundaries of gas, oil, and salt water are easily determinable and are scrupulously maintained in the rock, except that as soon as development begins the salt water is always the aggressive and advancing element. When the drill descends into the gas rock proper dry gas escapes; when into the contiguous and lower-lying terrace, oil accompanied with gas appears, as already described; but at a little lower level salt water is struck, and this rises promptly in the well, sometimes to the point of overflow. Far out from the narrow ridges or restricted terraces where gas and oil are found the salt water reigns undisturbed, and wherever reached by the drill it rises in the wells as in those already described. It would be in the highest degree absurd to count the little pockets of gas that are found in the arches the cause of the ascent of this ocean of salt water a score or a hundred miles away. The rise of the salt water is unmistakably artesian. It depends on hydrostatic pressure, as does the flow of all artesian wells, and its head must be sought, as in other like flows, in the higher portions of the stratum that are contiguous.

The nearest outcrops of this porous Trenton have been already named. They are found in the shores of Lake Superior at an altitude of about 600 feet above tide. It is certainly significant that when an abundant flow of salt water is struck in a boring in northern Ohio or in Indiana,

no matter at what depth it rises generally, about to the level of Lake Superior; or, in other words, about 600 feet above tide. If the mouth of the well is below this level, as is the case in the Wabash Valley, the salt water overflows. On the shore of Lake Erie the water rises to within 20 feet of the surface; in Findlay, to within 200 feet. The height to which the salt water rises in any portion of the field is one of the elements to be used in measuring the force which can be exerted on the gas and oil that are caught in the traps of the terraces and arches of the porous Trenton limestone.

Why, then, is not the rock pressure of the gas the same in all portions of the new horizon? For the obvious reason, I reply, that there is a varying element involved, viz., *the depth of the rock below sea level.* The surface elevations at the wells vary greatly, and the wells of the same depth consequently find the gas rock in very different relations to sea level.

The Test of the Hydrostatic Theory.

It is obvious that if an explanation of the rock pressure of the Trenton limestone gas is attempted on this basis, there are facts enough now at command to substantiate or overthrow it. By the facts it must stand or fall. In the accompanying table I have indicated the following lines of facts as to strictly representative wells in the leading districts of the new gas fields, viz., (1) location, (2) depth at which gas is found, (3) relation of this depth to sea level, (4) the initial rock pressure of the gas. In regard to the last line of facts I have taken, in almost all cases, figures that I have myself verified. (5) A fifth column I add, in which the pressure due in the particular well is calculated from the two following elements, viz., an assumed elevation of the salt water to the Lake Superior level, or 600 feet above tide; and, secondly, an assumed specific gravity of the salt water of the Trenton of 1.1, which gives a weight of 0.476 pound to the foot.

Locations.	Depth to gas.	Relation of gas rock to sea level (below tide).	Original or first observed pressure.	Calculated pressure 1 foot= 0.476 pound.
Ohio	Feet	Feet	Pounds	Pounds
Tiffin, Loomis & Nyman well	1,500	747	650?	641
Upper Sandusky, well No. 1	1,280	478	515	513
Bloom Township, Wood County, Godsend well	1,145	395	465	473.6
Findlay, Pioneer well	1,120	336	450	445.7
St. Mary's, Axe well	1,159	238	390	398.8
St. Henry's, Dwyer well, No. 1	1,156	200	375	385
Indiana				
Kokomo, well No. 4	936	98	320	332
Marion, well No. 3	870	78	323	322.7
Muncie	900	(*)	300?	286.6

* At tide level.

These figures seem to me to settle the question as to the origin of the rock pressure of the gas in this formation. I feel sure that nicer determinations of the facts involved as to altitude and depth would bring a still closer agreement between columns four and five. I will ask you to note in particular the facts as to the St. Mary's and the St. Henry's wells. They have practically the same depth, 1,159 and 1,156 feet; but there is a difference of 38 feet in the depth of the gas rock with reference to sea level. There is a corresponding difference in the rock pressure of 15 pounds, as recorded. The difference in rock pressure due to this 38 feet by calculation is 13.8 pounds, or practically, 15 pounds. I presume that column five is as near the truth in this particular as column four. The gauge would quite certainly be reported 385 pounds if it lacked but 1 or 2 pounds of that number.

The Laws of Gas Production.

The laws of gas and oil production and accumulation are coming to light more clearly in the flat country of Ohio and Indiana than they have ever done among the hills and valleys of the older Alleghany fields. As it seems to me, no more important deduction from the new districts has been reached than the law now stated, viz.: *The rock pressure of Trenton limestone gas is due to a salt-water column, measured from about 600 feet above tide to the level of the stratum which yields the gas.* The column can be conveniently counted as made up of two

parts, viz., a fixed length of 600 feet added to the depth of the gas rock below tide.

If this explanation is accepted as satisfactory for Trenton limestone gas, I venture to suggest that the fact will go a great ways towards rendering probable a like explanation for rock pressure in all other gas fields; but I will not at the present time venture to extend it beyond the limits I have named. I am aware of certain facts, or at least supposed facts, from the older fields that seem difficult of explanation on this basis.

There are a few obvious inferences from this law to which I venture to call your attention in closing this paper:

(1) There is no danger that the great gas reservoirs of today will "cave in" or "blow up" after the gas is withdrawn from them. The gas will not leave the porous rock until the salt water obliges it to leave by driving it out and taking its place.

(2) This doctrine lays the ax at the root of all the optimistic theories which blossom out in every district where natural gas is discovered, and especially among the real-estate operators of each new field, to the effect that nature will not fail to perpetually maintain or perpetually renew the supplies which we find so delightfully adapted to our comfort and service. So far as we are concerned it is certain that nature has done about all that she is going to do in this line. In her laboratory a thousand years are as a single day.

(3) No doctrine could exert a more healthful influence on the communities that are enjoying the inestimable advantages of the new fuel than this. If it were at once accepted it would add years to the duration of these precious supplies of power. The ignorant and reckless waste that is going on in the new gas fields is lamentable. The worst of it comes from city and village corporations that are bringing the gas within their boundaries to give away to manufacturers whom they can induce on these terms to locate among them. To characterize the use of a million feet of natural gas a day, in a single town, for burning common brick, for example, or in calcining common limestone, there is a good word at hand, viz., *vandalism*.

(4) If this doctrine of the rock pressue of gas is the true one, the geologists who have to deal with the subject and the communities that have found a supply owe it to themselves to keep it prominently before the people who are especially interested. They may make themselves temporarily disagreeable thereby, but by just so far they convince those that are interested, they lengthen the life of these precious supplies.

Summary by Ernest K. Parks of "Analytical Principles of the Production of Oil and Gas and Water From Wells" by Stanley C. Herold, 1928.

(Herein Mr. Parks presents a summary of the theory set forth in the foregoing treatise, emphasizing its relation to the problems of oil and gas field development, operation and rejuvenation. His thorough study of the theory itself and his knowledge of oil and gas field practice undoubtedly place him in a position to select and explain in not too technical language those items of greatest concern to the executive or operator. It is assumed that this executive or operator desires information concerning the nature of the subject treated, the author's method of attack, and the value of the work to the industry, without entering upon a detailed study of the contents of the book.—S. C. H.)

A well, properly fitted with its casing, its tubing, its head equipment, and any other accessory apparatus, such as a pump or a gas lift, is, after all, merely the orifice of a natural reservoir that is capable of producing oil and gas. It is the hole through which these fluids are brought to the surface. To serve efficiently it must of course be suitably equipped and properly maintained in condition during operation. By means of this hole we obtain not only production itself, but, since it is our only point of access to the productive formation lying below, we obtain also the data of such production. From these data we know the behavior of the reservoir; consequently we know how best to treat the reservoir and what to expect of it in return. It is the reservoir which is of greater concern to us. Without it the well would have no value.

The industry asks, "What do we know about the physical laws governing the habits of oil and gas deposits, and the laws which govern and influence the extraction of oil and gas from those deposits?"[2] We may assume that the answer is indeed given in the foregoing treatise.

---

[2] This question was framed by M. E. Lombardi, Standard Oil Company of California, and presented to the Pacific Coast Technical Sub-Committee of the American Petroleum Institute's Gas Conservation Committee, San Francisco, September, 1927.

Seven so-called primary functions of performance—pressure, velocity, volume, acceleration, energy, power, and time—give us the key to the entire situation within the reservoir. We must know about *pressure,* because this determines whether or not the reservoir will produce; it determines the rate of production; and it is necessary to the calculation of future production. *Velocity* is merely a convenient term for the rate of production. *Volume* is the total amount of fluid to be produced. *Acceleration,* or the change in the rate of production is an essential feature of our studies in decline curves. *Energy* is utilized in the work of production, and it is related to the amount of gas accompanying oil within the reservoir. *Power* is the rate at which energy leaves the reservoir, and it is also the rate at which gas is produced with oil. Obviously it is a feature of direct application in the problem of gas-oil ratios. *Time,* of course, is vital to all our calculations.

In contrast to these primary functions which deal with the behavior of the reservoir, as observed at the well, there are the secondary functions. These deal with the events and conditions which take place or exist within the reservoir itself. They pertain to such matters as the source of energy within the reservoir, the conservation of this energy, the drainage radius and the drainage area of wells producing from the reservoir, the encroachment of water upon the pool of oil and upon the well itself, the fitness of the reservoir formation for the storage of gas and for reserves of oil, the percentage recovery from the formation by natural flow, the fitness of the reservoir formation for the restoration of gas pressure, and for the forced drive with water, air, or gas. These features are

called secondary because they are to be identified by means of the primary functions, and not because they are of less importance.

It is evident, then, that we have sufficient reasons for understanding the nature of the primary functions, their characteristics, their interrelations, and their variations during production. By means of them we learn to regulate the performance of the well to the best advantage, in that we know the proper back pressure to be applied, the most desirable rate of production, the most economical gas-oil ratio to be attained, and the most desirable rate for pumping or lifting the oil from the bottom of the well. Upon them we base our forecasting of the future performance of the well. For this they prescribe the necessary data to be collected in the field, and they indicate the manner in which these data should be used. The collection of irrelevant data is to be avoided, and the loss of relevant data by neglecting the proper observations is to be prevented. Finally, as we have just noted, they indicate to us the events and conditions within the reservoir. By means of them we learn the proper location and spacing of wells in developing the field, we know the necessity or lack of necessity in purchasing protective acreage, and we know the amount and security of our reserves.

The primary functions are related differently under various circumstances, and, as we might expect, the secondary functions are different in correspondence with them. These differences are not to be confused with minor features that are due simply to local circumstances within the vicinity of the single well or group of wells

in the field. It is true that such local variations in structure and texture, as are known to exist in our fields, combined with a greater or less proximity of water, tend to make each well distinguishable from every other well in the same field, and each field distinguishable from every other field in existence. In spite of these features all natural reservoirs possess properties which permit us to classify them into three distinct groups. These groups, called "controls," are clearly defined, and they are therefore easily recognized in the field. Each control has its distinct set of performance curves in accordance with different relations between the primary functions. Every natural reservoir must belong to one of the three.

The three controls are as follows:

1. *Hydraulic Control.*—Pressure and rate of production remain constant during the course of production from the reservoir. The situation is analogous to that of a water tank delivering its water with a head, or depth of water, maintained at a constant level within it by the necessary inflow of more water.

2. *Volumetric Control.*—Pressure and rate of production decline and approach zero during the course of production from the reservoir. The situation is now analogous to a water tank delivering its water with a head declining in accordance with production from it.

3. *Capillary Control.*—Pressure and rate of production also decline and approach zero during the course of production. The decline here takes place in accordance with the characteristics of the "Jamin capillary tube," a tube of capillary bore, filled with alternating globules of liquid and bubbles of gas.

Natural reservoirs in Hydraulic and Volumetric controls perform according to the well-known laws of hydraulics. As we see, the only difference between them lies in the fact that the pressure head remains constant in the first one, while it declines in the second one. The fact that the reservoir is associated with a porous formation does not affect the laws of production, as these are displayed by the pressure and rate of production curves. Only the numerical values are different in the presence of this formation. The column of liquid bearing its weight upon the bottom of the well is the source of the energy; consequently the water surrounding the pool of oil must be conserved. The encroachment of this water upon the pool and upon any well in the pool is inevitable in time. The drainage radius and drainage area of each well in the pool is coextensive with the formation itself. This means that all wells are producing from the same space. These reservoirs are unsuitable for the storage of gas and for oil reservoirs, if wells under other ownership are producing from the same formation. On the assumption that there is at least one well to each minor [illegible] in the structure, recovery is one hundred per cent of the mobile oil in Hydraulic Control and the same in Volumetric Control, depending upon whether or not the pool is depleted before the pressure and rate of production curves reach zero in the course of production. It is useless to attempt the restoration of gas pressure within these reservoirs, for the gas is not the source of the energy. The forced drive with water, air, or gas is unnecessary on our part, for Nature is already driving with water—with that water which

surrounds the pool and extends up the general dip of the formation.

The Kern River Field of California is a good example of production in Hydraulic Control, and the Coalinga Field of the same state is a good example of production in Volumetric Control.

The discovery of Capillary Control in our producing fields and the complete analysis of its important economic features constitute the outstanding contribution of Mr. Herold's work. While "Jamin action," as illustrated by the behavior of the Jamin capillary tube, plays a role in all natural reservoirs in porous formations when both liquid and gas are present, its role is a subordinate one in Hydraulic and Volumetric controls, but a predominant one in Capillary Control. The situation as explained by Capillary Control, with respect to both primary and secondary functions, accounts for the supposed erratic behavior of many of our oil and gas wells.

Jamin action is due to alternating globules of liquid and bubbles of gas within channels sufficiently small to permit capillary forces to be an important feature. The globules, on the release of pressure at one end of the channel, become distorted in shape, and in this condition they offer a resistance to the pressure tending to drive both the liquid and the gas toward this end. Consequently the amount of liquid and gas to issue from the channel depends upon the intensity of the pressure bearing upon the fluids within it.

The action of these globules and bubbles is easily observed in the Jamin tube having glass walls. A porous formation may be taken as a bundle of such tubes radiat-

ing in all directions from any well which penetrates it. The hydrostatic pressure bearing upon a pool of oil in the vicinity of the well may be sufficiently intense to overpower the resistance of the globules. In this case the well produces either in Hydraulic or in Volumetric Control, depending upon whether or not this hydrostatic pressure is constant during production. But if this hydrostatic pressure is absent, or if it is not sufficiently intense to overpower the resistance, the well produces in Capillary Control.

The source of energy in reservoirs of Capillary Control is due to gas pressure; consequently the conservation of this energy is only to be attained by the conservation of the gas within the reservoir. The drainage radius of a well in such a reservoir is of limited length, depending upon the intensity of the pressure tending to move the oil toward the well, and the intensity of the resistance offered by the globules in the path of movement. The drainage area of a well is circular—perhaps an imperfectly circular one because the texture of the formation is not the same in all directions from the well; nevertheless the area is a closed one, and it does not cover the extent of the formation. Water surrounding the pool of oil cannot encroach upon it. If the well happens to be located near the edge, water of course can encroach upon the well, for this water lies within the drainage area of the well. The formations having such characteristics are eminently suited to the storage of gas and to reserves of oil. Neighboring wells drain from a property only within a limited radius, and an offset well prevents even this. The percentage recovery from the formation by natural flow varies considerably in different

fields of this control, for the recovery depends entirely upon the radius of drainage of the wells, and the spacing between them. In any given field we can actually determine the recovery. The restoration of gas pressure is entirely proper, for the gas, as just stated, is the source of all energy within the reservoir. Complete recovery is only to be attained by the forced drive with water, air, or gas. We must apply a pressure at one well of sufficient intensity to overpower the resistance offered by the globules between it and another well. Nature is not flooding with water in these reservoirs, since the hydrostatic pressure is either absent or not of sufficient intensity; consequently we must flood the formation ourselves, if we want the oil which remains after natural flow and pumping have reduced production to the low rate that is said to be the economic limit of operation. Nature permits us to imitate her in flooding, but in this she confines us to a local area within the vicinity of the input and output wells. The area proves to be elliptical in shape, and its dimensions can be determined in any case.

There are, as we have seen, two controls—Volumetric and Capillary controls—in which pressure and rate of production decline in the course of production. The secondary functions—the events and conditions within the reservoirs—are very different in the two. We cannot make personal visits to the formations. How shall we decide which of the two controls we have in any field of interest to us? Easily and efficaciously by means of the primary functions. As stated above, they indicate to us the events and conditions within the reservoir.

The pressure curves are the same in both declining controls; consequently we cannot tell from pressure curves alone the control of the field. The rate of production curves, however, are different. To be absolutely certain of the control we should have both pressure and rate of production curves. We have used both in gas field practice for several years, and there seems to be no reason why we should not use both in oil field practice. Where we have them we can plot the values of pressure and rate of production in percentages of the initial values against time. If the rate curve lies above the pressure curve we have Volumetric Control, but if it lies below the pressure curve we have Capillary Control. We see how easy this is. As a matter of fact the gas engineers in the fields of Ohio, Pennsylvania, New York, and the Canadian provinces adjoining, have long ago recognized the fact that the rate of production curve underlies the pressure curve. (They have been producing from reservoirs in Capillary Control without being aware of the significance of it.) They found that the well-known laws of hydraulics are not applicable to their gas wells. They were right.

Another way by which the distinction between the two controls can be made is by plotting the rate of production against the pressure on logarithmic paper. If the points do not lie on a straight line they can be made to do so approximately by shifting them to the right or to the left in the usual manner. If this line has a slope of one to two we have Volumetric Control, but if it has a slope of three to two we have Capillary Control. We also see how easy this is. As a matter of fact gas engineers in Kansas and Oklahoma have long ago rec-

ognized the three-to-two slope. (They likewise have been producing from reservoirs in Capillary Control without being aware of the significance of it.)

Oil wells in the regions mentioned above also produce from reservoirs in Capillary Control. Until recently the oil engineers have not had pressure data on their wells; so the situations with respect to the two curves are not very well known among them. Nevertheless they have frequently noted that the rate of production curves have a slope of three to one on logarithmic paper. This is the slope for Capillary Control. If the reservoirs were in Volumetric Control these curves would have a slope of one to one. All these circumstances are in agreement with the fact that there are two declining contr ols.

The Cushing Field in Oklahoma is an excellent example of production in Capillary Control. It has been particularly noted there that edge water does not encroach upon the pool, as it does in the Coalinga Field.

If we say that in the Kern River and Coalinga fields every barrel of oil produced at one well means one barrel less for some other well or group of wells, and that such is not the case in the Cushing Field, we are basing our statement upon a knowledge of the secondary functions of producing reservoirs in the three controls. But how can we have this knowledge? The answer is: by mathematical analysis. This simply means that from the known properties of fluids, such as viscosity, surface tension and capillarity, and from the known laws of physics, such as Boyle's Law, Henry's Law, and the laws of fluid mechanics, we can proceed with mathematical operations that are mostly algebraic and geometrical in their nature,

and derive results which can be interpreted in terms of the producing reservoir. Of course we know in advance what we wish to determine; consequently we continually steer our mathematical course in that one direction until we arrive at our destination. Upon arrival we cannot be sure of ourselves until we verify the situation. Now this verification is a simple matter in the case of oil and gas production, for we have been noting the performance of wells for many years. The experience we have already had with producing properties is generally sufficient for us to decide whether or not our results are correct. We may expect different results in the three controls; therefore we must be careful in judging them from our experience. If our experience should be confined to reservoirs of one control, it is almost certain that we will question results which pertain to a reservoir of a different control. Where question arises, perhaps the best we can do is to ask someone who has had experience in the other control if he can say that the result is correct.

By mathematical analysis Mr. Herold leads us to the analytical principles of production. But what are analytical principles of production? They are simply laws pertaining to production. We have had some of them for many years. Take the *law of equal expectation* as given by Lewis and Beal:[3] "If two wells under similar conditions produce equal amounts during any given year, the amounts they will produce thereafter on the average, will be approximately equal, regardless of their relative ages." This is one analytical principle of production.

---

[3] J. O. Lewis and Carl H. Beal, "Some New Methods for Estimating the Future Production of Oil Wells," Transactions of the American Institute of Mining Engineers, Vol. LIX, February, 1918, pp. 492-520.

Take another, the *equal production per pound decline law* of unknown authorship: "For equal amounts of decline in the pressure at a well equal amounts of oil are produced." By mathematical analysis we find that the first of these laws is a correct one, regardless of the control, provided the two wells being compared are not in different controls. Likewise by mathematical analysis we find that the second of these laws is correct for wells which produce from reservoirs in Volumetric Control, but not correct for those which produce from reservoirs in Capillary Control.

These two laws, as stated, illustrate to us a very important matter. Laws, or analytical principles—whichever we wish to call them—can be determined by carefully observing wells during production; they can be determined without mathematical analysis. Then why resort to mathematical analysis at all? Not all of us are fluent in mathematics; some of us cannot see anything about a producing well in an equation. Why not study the well itself, and leave the mathematics to those who like it? But if it were not for mathematics we would not know that these very two laws have restrictions in their application. Furthermore, it is quite likely that there are other laws of easy application which it might profit us to know about. Instead of attempting to find them by months of observation at the wells, why not spend a few minutes with mathematics? If we like them when we get them we can apply them; if not, we can discard them and look for others. Then there are all those questions which the industry asks of us concerning all those events and conditions within the producing reservoir. There are analytical principles which pertain to them.

Years spent in observations at the wells have not given, and cannot give, the information that we feel we must have in order to operate our properties to the greatest advantage. A few hours spent with mathematics will give us that information.

Many new analytical principles of production are brought to light in the present treatise. So long as they are new we must have their proofs; otherwise we can hardly afford to accept them. For this reason the mathematical proofs are included in the text. When we are more familiar with these principles, we can probably get along without proofs. Until then, it will be well at least to have them available. Proofs of necessity appear in the form of equations. Verifications in the field are often only of an incidental character. They cannot always be relied upon, unless we know well the mathematical relation between the verifying observations and the principles themselves.

Mathematical analysis is not dependent upon so-called unknown factors of production. But how can analysis proceed without evaluating the effects of such properties as viscosity, surface tension, and capillarity? It is of first importance to know *how* the factors affect the pressure, the rate of production, the volume to be produced, and so on, rather than to know *how much* they affect these things. The "how" really determines the form of the equation, while the "how much" merely determines the value of some constant which appears in the equation. We can call this constant *"K"*, and be assured that it represents the unknown factors of production. In the statement of any law, such as the two given above, the situation is so worded that undetermined constants do

not appear in the expression. The author is therefore justified in handling K as an unevaluated constant throughout his work. This simplifies the study of production considerably. While the unknown factors are acknowledged as existing, their values remain unevaluated, and the result is the same as if they had been evaluated.

It is now clear how this treatise simplifies the solution of problems encountered in oil and gas field practice by:

1. Resolving the principal features of production—features observed at the well—into seven primary functions, the relations of which to one another are systematically developed.

2. Classifying oil and gas reservoirs into three controls.

3. Establishing the relations between the primary and secondary functions of reservoirs.

4. Describing the secondary functions of reservoirs.

5. Removing from consideration all unknown factors of production.

A further simplification is provided by the adoption of the method of measuring pressure and volume long ago established by the hydraulic engineer. Pressure is expressed as "effective pressure" and volume is expressed as "available volume" under the particular conditions regarding back pressure at the well. From this it follows that the rate of production should be expressed as the "actual rate" under the particular conditions regarding back-pressure at the well, and not as an "open flow rate" so frequently dealt with in gas field practice. By this method the calculations concerning liquids, gases, and vapors are made in the same manner. The fact that these fluids behave differently when subjected to changes in pressure does not influence the method of calculation. Instead of such words as "effective," "available," and

"actual," required to suit the various functions, the one word "potential" is applied to all of them. Thus the potential pressure is the effective pressure, the potential volume is the available volume under the given conditions, and so on. No change is made in naming the units of the functions; pressure appears in pounds per square inch or feet of liquid, volume appears in barrels or cubic feet at atmospheric pressure, and rate of production appears in barrels or cubic feet per day, per week, per month, and so on. Undoubtedly this method of placing calculations on a single basis for all fluids will be appreciated by the oil and gas engineer.

The classification of reservoirs, the consequent classification of problems concerning production from them, and the simplification of the solution of these problems all tend toward more efficient operations in our oil and gas fields.

Throughout the treatise much emphasis is placed upon the graphical representation of well performance. Curves for pressure decline rate of production, cumulative production, and so on, are explained for each control under varying conditions of production. Curves plotted upon logarithmic paper are also explained. Logarithmic paper is a valuable tool in the hands of the oil and gas engineer; it has been in use for some years yet no book has heretofore discussed the properties of this paper with respect to production from wells. A thorough understanding of all graphical methods will assist the engineer in his calculations. Short cuts will suggest themselves, and greater precision on the whole will result from this study.

Mr. Herold's work is comprehensive in the theory of production. He does not deal with hypotheses of production. The principles set forth are already abundantly verified in oil and gas field practice. These principles

are fundamental; they do not depend upon local features within the vicinity of the well or group of wells. They may be compared with the law of gravity in that they hold regardless of local conditions. The application of the principles will reveal the local features. These features need not be known in advance of application. The principles are offered to us in lieu of costly and indecisive experiments in our laboratories and in our fields. Misconceived notions regarding the conservation of gas pressure, the restoration of gas pressure, the percentage recovery from the formations, the application of back pressures, and the drainage of properties by the adjoining wells of others are avoided by understanding these fundamental principles. These things are only misconceived when applied to the wrong control; otherwise they are properly conceived. Thus it becomes clear that we must know the control of our fields from the time of its discovery, in order that we may properly judge the wells in their behavior, properly treat the wells during their production and properly develop the field at large.

One of the causes of overproduction is the fear that neighboring wells will drain the property if it is not developed rapidly. This fear is well founded in reservoirs of Hydraulic and of Volumetric Control. In these we need co-operation among the various operators. On the other hand, this fear is absolutely unfounded in reservoirs of Capillary Control. Co-operation is unnecessary; single offsets to the adjoining wells are entirely sufficient to prevent drainage; the remaining oil within the interior of the property will rest untouched until the end of time. By means of the principles brought forth in this treatise we shall see the stabilization of the industry. We shall obtain the greatest amount of oil at the least cost only so rapidly as we need it for the market.

San Francisco, California, June, 1928.

Groundwater Hydrology Baker & Conkling "Water Supply and Utilization." Groundwater Hydrology.

10-1. GENERAL.—The term "groundwater" as used herein is taken to refer to that water which exists in the earth between the land surface and the upper zone of rock flowage. This water occupies an important place in the problem of water supply, and in many sections of the West it provides practically the only source from which developments may be made. The underground reservoirs, formed by the water occurring in the interstices of the rocks and soil, afford almost unlimited capacity for cyclic storage; they are provided by nature at no cost to mankind except that of extraction, and have ample protection against evaporation losses. In sections where surface storage is impossible due to lack of available sites, or is prohibitory on account of cost or wide seasonal variation of streamflow, resort must be had to groundwater development.

Such development usually requires a low initial investment and encourages utilization of water supplies in small units. The large capacity of underground reservoir provides holdover storage capacity with ample supply available on demand. This feature and the relatively high operating cost, as compared with gravity systems, make economy in the use of water characteristic of pumping developments.

General Principles of Occurrence of Groundwater.

10-2. Porosity. —All solid material going to make up the surface of the earth is classified in geology by the term "rock" irrespective of its structure, occurrence, or chemical composition, and this term will be used in such connection herein. Groundwater in the earth's surface occurs in the interstices, or open spaces, in rock matter, and that property which rocks have of containing interstices is defined as porosity.[1] The porosity of a material is usually expressed as the percentage of the total volume of the material that is occupied by interstices. It may be dependent upon a number of factors,[1] some of which are:

Shape, size, and arrangement of constituent materials,

Cementation and pressure to which the material has been subjected since deposition.

Table 55.—Porosity of Various Rocks and Soils
(Water Supply Paper 489, p. 10, U. S. G. S.)

Rock	Authority	Number of Tests	Porosity (Per Cent by Volume) Mini-mim	Maxi-mim	Average of Mean
Granite, schist, and gneiss	Buckley [1]	14	0.02	0.56	0.16
Granite, schist, and gneiss	Merrill [2]	22	0.37	1.85	1.20
Babbro	Merrill [2]	1	.....	.....	0.84
Diabase	Merrill [2]	2	0.90	1.13	1.01
Obsidian	Delesse [3]	1	.....	.....	0.52
Sandstone	Buckley [1]	16	4.81	28.28	15.89
Sandstone	Merrill [2]	.....	3.46	22.80	10.22
Quartzite	Merrill [2]	1	.....	.....	.80
Quartzite	Geikie [4]	.....	.....	.....	.21
Slate and shale	Delesse [3]	2	0.49	7.55	3.95
Limestone, marble and dolomite	Buckley [1]	11	0.53	13.36	4.85
Chalk	Geikie [4]	.....	.....	.....	53.00
Oolite	Merrill [2]	8	3.28	12.44	7.18
Gypsum	Geikie [4]	.....	1.32	3.96	2.64
Sand (Uniform)	King [5]	Many	26.00	47.00	35.00
Sand (Mixture)	King [5]	Many	35.00	40.00	38.00
Clay	King [5]	Many	44.00	47.00	45.00
Clay	Geikie [4]	.....	.....	.....	53.00
Soils	U. S. Dept. of Agriculture	Many	45.00	65.00	55.00

[1] Buckley, E. R., Building and ornamental stones (of Wisconsin), Wisconsin Geol. Survey Bulletin 4, pp. 400-403, 1898.

[2] Merrill, G. P., Stones for building and decoration, Appendix.

[3] Delesse, Achille. Recherches sur l'eau l'interieur de la terre; Soc. Geol. France Bulletin, 2d ser., Vol. 19, pg. 64, 1862.

[4] Geikie, Archibald, Textbook of Geology, 4th ed., Vol. 1, p. 410, 1903.

[5] King, F. H., Principles and conditions of the movements of ground water; U. S. Geol. Survey, 19th Annual Report, pt. 2, pp. 209-215, 1898.

Amount of material dissolved by water percolating through the formation,

Amount of fracturing to which the material has been subjected.

10-3. Classification of Rocks According to Distribution of Interstices.[3]—The behavior of water in rocks depends upon the size, relative volume, shape, and distribution of interstices, and rocks may be classified accordingly. The following classification is based upon the uniformity of distribution:

1. Uniform Distribution:

(*a*) Unconsolidated granular rocks.

(*b*) Consolidated granular rocks.

2. Non-uniform distribution:

(*a*) Dense rocks.

(*b*) Fractured rocks—altered by fracturing, solution, etc. Rocks falling in the first class include sand, gravel, clay, silt, and similar unconsolidated deposits; and sandstones, conglomerate and other cemented or otherwise consolidated rocks, where the interstices are fairly uniform throughout the rock mass. In the second class occur such rocks as granite, which is relatively dense and in its unaltered state has a practically negligible porosity; limestone, which may have a fairly large porosity owing to solution channels; and basalt, with a high porosity due to fractures, contraction joints, etc.

In rocks of the first class the behavior of groundwater, the water content, and the yield may be fairly well pre-

---

A—Well-assorted sedimentary deposit having high porosity.

B—Poorly-assorted sedimentary deposit having low porosity.

C—Well-assorted sedimentary deposit consisting of pebbles that are themselves porous so that the deposit as a whole has a very high porosity.

D—Well-assorted sedimentary deposit whose porosity has been diminished by deposition of mineral matter in the interstices.

E—Rock rendered porous by solution.

F—Rock rendered porous by fracturing.

(Water Supply Paper 489, U. S. G. S., p. 3)

dicted from knowledge gained from small samples; but in the second class these qualities will vary with the same kind of rock, and for that reason they are much less dependable as sources of water supply.

10-4. Forces Controlling Behavior of Water in Rocks.—Water as it exists in the interstices of rocks is subject to two controlling forces, that of gravity, which tends to draw the water down to lower levels, and that of molecular attraction, tending to hold the water in suspension against the force of gravity in the small interstices within the rock material. Molecular attraction is appreciable only over minute distances, and can act only within the very minute interstices and crevices of the rock mass. When it acts between the molecules of like materials it is termed "cohesion" and between the molecules of different materials it is called "adhesion". It gives rise to the phenomenon known as surface tension or capilary attraction.

Surface[2] tension is that phenomenon which causes a liquid to spread out in a minute film over rock surfaces, and cause drops of a liquid to take on a spherical form. Capillarity is that phenomenon which causes a liquid to rise against the force of gravity through small tubular openings. In the smaller minute interstices in a rock mass, molecular attraction will retain a large percentage of the water occupying the interstices against the pull of gravity; in granular masses made up of small particles the surface area is very great, consequently a large amount of water is necessary to cover the surfaces of these particles. King[3] estimates that the aggregate surface of the particles occupying a cubic foot of loam soil would equal an acre,

but in a cubic foot of clay they would aggregate four acres.

10-5. WATER-YIELDING CAPACITY OF ROCKS.[4]—Even though all of the interstices in a rock are completely filled with water, not all of the water may be extracted. A portion of the water content is under the influence of gravity and will drain out and pass to lower levels, but the balance will stay in suspension, held there by forces of molecular attraction. That water which is controlled by the force of gravity is termed "gravity groundwater," and the percentage of gravity groundwater in a volume of rock is known as the "specific yield," while that percentage which is retained within the rock against the force of gravity is termed the "specific retention". For example, if a rock mass of 100 cubic feet with a porosity of 30 per cent (=30 cubic feet) yields 16 cubic feet of water, its specific yield is 16 per cent, and its specific retention is 14 per cent (30—16=14). It is the specific yield of rock formations that is of particular interest to the student of water supply, as this characteristic determines the volume of the storage capacity existing within the rock mass.

10-6. FACTORS AFFECTING SPECIFIC YIELD AND SPECIFIC RETENTION.[5]—The specific yield of a rock mass is influenced by both the porosity and the size and distribution of the interstices, the latter in granular material varying with the size and arrangement of grains. The porosity of the rock governs the total possible water content, but the size of grain controls the magnitude of molecular attraction between the water and the rock material, and consequently the proportion of water which the rock

will give up against the force of gravity. Figure 109, based upon experiments made by Hazen, shows the influence of size of granular particles upon the specific retention, and emphasizes the marked effect of small sizes of less than 0.5 millimeter, the size of medium sand.

In connection with this phenomenon it has been shown that clay has a porosity approximately equal to that of sand or gravel, but due to the minute size of its grains and resulting interstices, its specific retention is almost equal to its porosity, with its specific yield almost zero. On the other hand, dense rock such as limestone or basalt may have a relatively low porosity with a high specific yield closely approaching the porosity because of the large size of interstices.

Bibliography.

[1] O. A. Meinzer, Water Supply Paper 489, U. S. G. S., pp. 2-3 (1923).
[2] L. J. Briggs, The Mechanics of Soil Moisture, Bull. 10, Bureau of Soils, U. S. Dept. of Agr. (1897).
[3] F. H. King, 19th Ann. Rept. U. S. G. S. (1899).
[4] O. A. Meinzer, Water Supply Paper 489, U. S. G. S., p. 50 (1923).
[5] Principles and Conditions of the Movements of Groundwater, 19th Annual Rept., U. S. G. S., Part 2 (1899).

SUMMARY OF OPERATIONS

California Oil Fields

MONTHLY CHAPTER. FOURTEENTH ANNUAL REPORT

OF THE

STATE OIL AND GAS SUPERVISOR

ISSUED BY

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Vol. 14 SAN FRANCISCO, CALIFORNIA, JUNE, 1929 No. 12

SPECIAL ARTICLES

Crooked Holes.

Refinery Statistics.

75887

STATE OF CALIFORNIA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

R. D. BUSH
State Oil and Gas Supervisor
FERRY BUILDING
San Francisco, California

Deputies to the State Oil and Gas Supervisor

J. B. CASE, Chief Deputy, 611 New Orpheum Building, Los Angeles
E. HUGUENIN, 611 New Orpheum Building, Los Angeles
C. C. THOMS, Santa Paula
R. E. MCCABE, Santa Maria
H. A. GODDE, Taft and Bakersfield
E. H. MUSSER, Coalinga

PREFACE

Publication of the report of the State Oil and Gas Supervisor in monthly installments commenced with April, 1919.

The report carries a digest of all decisions made by the supervisor, during the month, in response to notices filed by operators. Notices of all proposed well operations are required by law.

Special articles dealing with the various phases of oil field operations also appear in the report. These articles present the results of observations of engineers of the Division of Oil and Gas. Short articles of a suitable nature, written by operators or outside engineers, are also accepted for publication. A complete list of all special articles published to date is given in each number of the monthly "Summary of Operations," and an alphabetical index of these articles is given in No. 12 (June) of each volume.

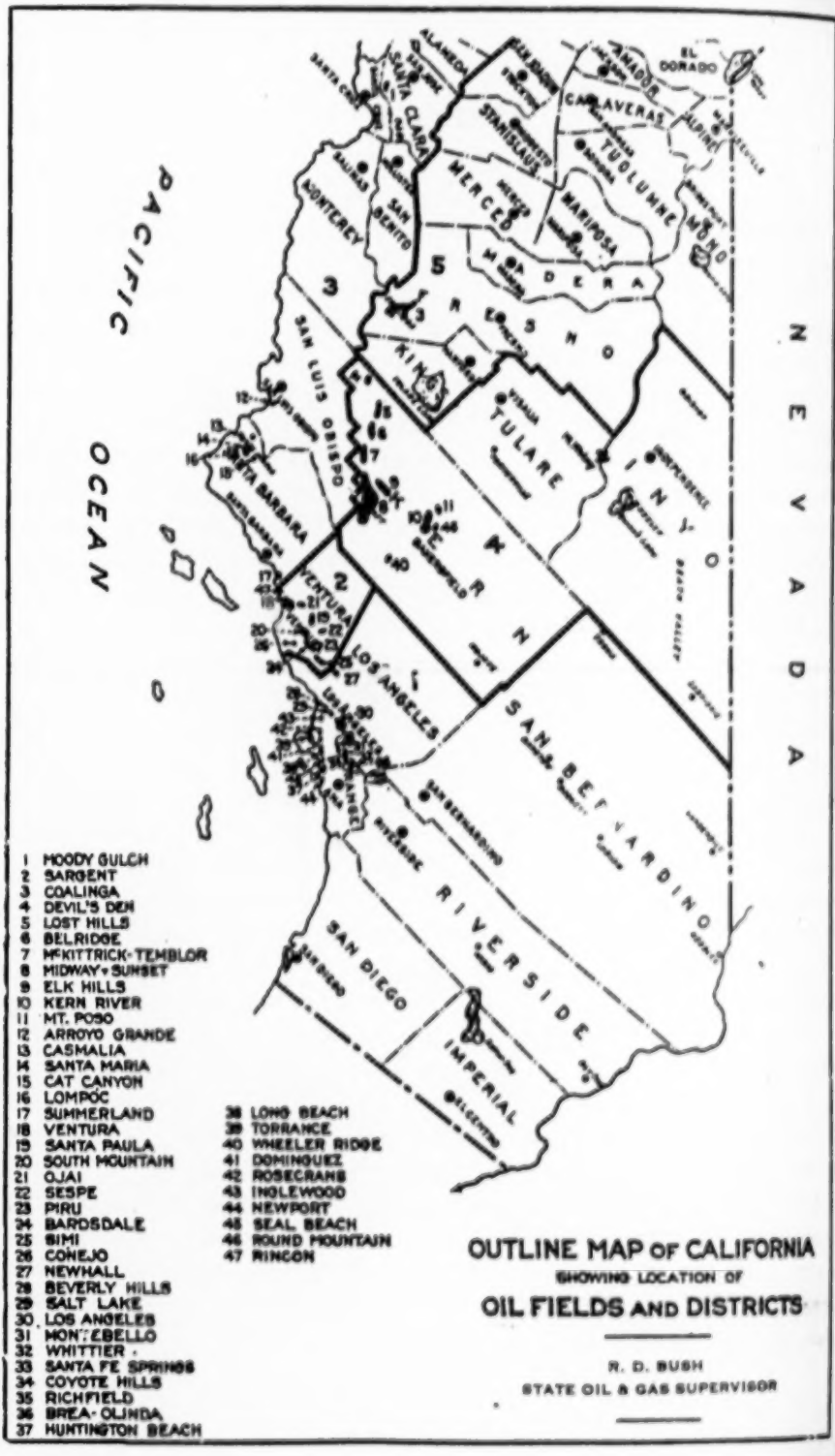
Prospecting operations in unproved areas, or for undeveloped formations within proved areas, will not be reported in full until after completion of the work if the operator so requests. The law provides for such procedure in that certain wells may be designated by the State Supervisor as "prospect wells."

The Division of Oil and Gas aims to serve the oil operators of California by furnishing them with the best information obtainable by state-wide scientific observation. The purpose is to have all wells drilled and maintained in accordance with the most approved methods. The desired end can only be attained by careful study and attention to many details.

Branch Offices of the Division, maintained in the various oil fields, afford the oil operators an opportunity promptly and informally to avail themselves of the service which is at their disposal.

The monthly report is mailed to all assessment payers, to the legal agents of operating concerns, and to other interested parties.

Errors appearing in this publication will be corrected as soon as brought to the attention of the Supervisor. All readers are invited to assist the Division by calling attention to errors and also by giving suggestions which might add to the usefulness of the monthly "Summary of Operations."



OUTLINE MAP OF CALIFORNIA
SHOWING LOCATION OF
OIL FIELDS AND DISTRICTS

R. D. BUSH
STATE OIL & GAS SUPERVISOR

CROOKED HOLES

By Paul J. Howard*

Introduction.

The success or failure of wells drilled to depths greater than 4000 feet often depends upon the inclination and direction the holes have taken. This is especially true in fields having strata lying at steep angles, such as the Long Beach oil field. In this field, in a number of instances wells have actually come in contact with each other, and in other instances holes have drifted so close together that mud from a drilling well flowed from a producing well. At such times it becomes necessary to shut in the producing wells, sometimes under back pressures, until strings of casing are cemented in the drilling wells. Some of these producing wells, when again permitted to flow, never regain their former rate of production. There are cases where holes have flattened out so much that bailers could not slide to bottom, although no difficulty was encountered with the drill pipe.

Usually straight vertical holes should be drilled in order to obtain the most satisfactory wells. A straight vertical hole saves casing and wear on drilling equipment. It may often save time in drilling, due to the fact that it may not have to be drilled as far as a crooked hole to reach the productive measures. Straight holes simplify the problems of correlating and obtaining uniform water shut-offs, and they obviously save wear on pumping equipment and increase its efficiency.

It is the purpose of the writer to present various methods which have been found helpful in drilling straight holes, to show the relationship of crooked holes to correlated depths, the importance of surveys, to describe the various devices used in California for determining the inclination, or inclination and direction, of rotary drilled holes, and to present charts to be used in conjunction with surveys for the purpose of correlation.

The writer is indebted to the owners of the various devices described herein, for their kindness in giving information in regard to their instruments, and especially to Mr. Alexander Anderson in furnishing various tables and diagrams.

Straight Holes.

A number of suggestions for drilling straight holes have appeared in recent articles on the subject of crooked holes. The committee on drilling practice of the American Petroleum Institute under the chairmanship of Mr. Melbert Schwarz, engineer of Rio Bravo Oil Company at Houston, Texas, recently sent out questionnaires to one hundred and fifty operators in that district in regard to crooked holes and straight-hole drilling practice. The information and opinions obtained were printed in the *Oil Weekly* of September 20, 1929, and were as follows, in order of their rated importance:

* Inspector, Division of Oil and Gas.

To drill a straight hole—

1. Use less weight on the bit and use a method of weight control.
2. Use less pump pressure and a slower rate of circulation.*
3. Use increased rotary speed, making suitable allowances for the type of formation drilled. This will tend to prevent the drill pipe from wobbling.
4. Carefully check the weight and suspension qualities of the mud.
5. See that the derrick and rotary are properly aligned at the start and remain so during the drilling of the well. Uneven settling of the foundations may throw out the alignment.
6. Start the hole straight. Use guide rings and turnbuckles to hold the kelly in a vertical position. Use a spirit level frequently as a check.
7. Employ drillers sold on the straight-hole idea.
8. Use reamers * and lace joints or long drill collars on the bottom of the drill pipe.
9. Use heavy rigid drill pipe.
10. Use the proper size of machinery.
11. Avoid "rathole" unless the drill string is equipped with reamers to guide the "rathole" in the center of the well bore.

The following information was also obtained by this questionnaire:

It is not satisfactory to increase the weight on a dull bit. Replace it.

When drilling through steeply dipping beds with the weight held up and using a high speed of rotation, there will be a tendency to dig into the inclined formations rather than drift down dip.

If the mud is too thin, there will be a tendency to wash out soft formations and the bit will wobble down the top of the next hard formation. This will be especially true if too much weight is carried.

When a cement plug is drilled out below the casing, the weight should be held up to prevent drilling alongside of the plug. A guide may be used to advantage when drilling out a plug.

If the size of a hole is reduced without the use of a guide, there will be a marked tendency to crook the hole at that point.

Mr. Robert R. Robinson believes that the following five factors affect the straightness of drilled holes to a marked extent:

1. The formation—hard and soft strata alternating.
2. The kind and condition of the cutting tools—bit and reamers.
3. The size of drill pipe and drill collars.
4. The condition of the mud.
5. The feed of the bit.

Mr. Robinson suggests that more or larger fluid holes in the bit be used rather than a slower circulating rate in order to reduce the hydraulicking action of the mud fluid.

Mr. H. H. Jones, of Continental Oil Company, believes that the problem of drilling straight vertical holes is not as difficult as most

* These recommendations are open to question.

operators maintain. His conclusion is that the drilling of vertical holes depends solely on the force of gravity. All devices constructed to make straight holes should be designed with this principle in mind. Mr. Jones recommends the use of a fishtail bit, whenever it will drill the formation, on the bottom of a very long heavy drill collar. The drill collar concentrates the weight at the bottom of the string of pipe and gravity tends to hold it vertical. He states: "The fishtail bit should be true and straight both flatwise and edgewise. The slush holes should point down the middle of the blade. The body should not be much larger than the drill collar. The cutting blades should be the largest part of the bit and both the bottom edge and the side edges should be comparatively sharp. The side edges should be about 8 inches long and be faced with the best possible hard metal, ground to an actual edge." The tendency is for the drill collar and bit to hang vertically. In case it should not always be in this position, the side edges of the bit would cut the formations until the hole would finally become vertical. A fishtail bit requires less weight for drilling than most other bits. This permits the drill pipe to rotate with less bending.

Crooked Holes.

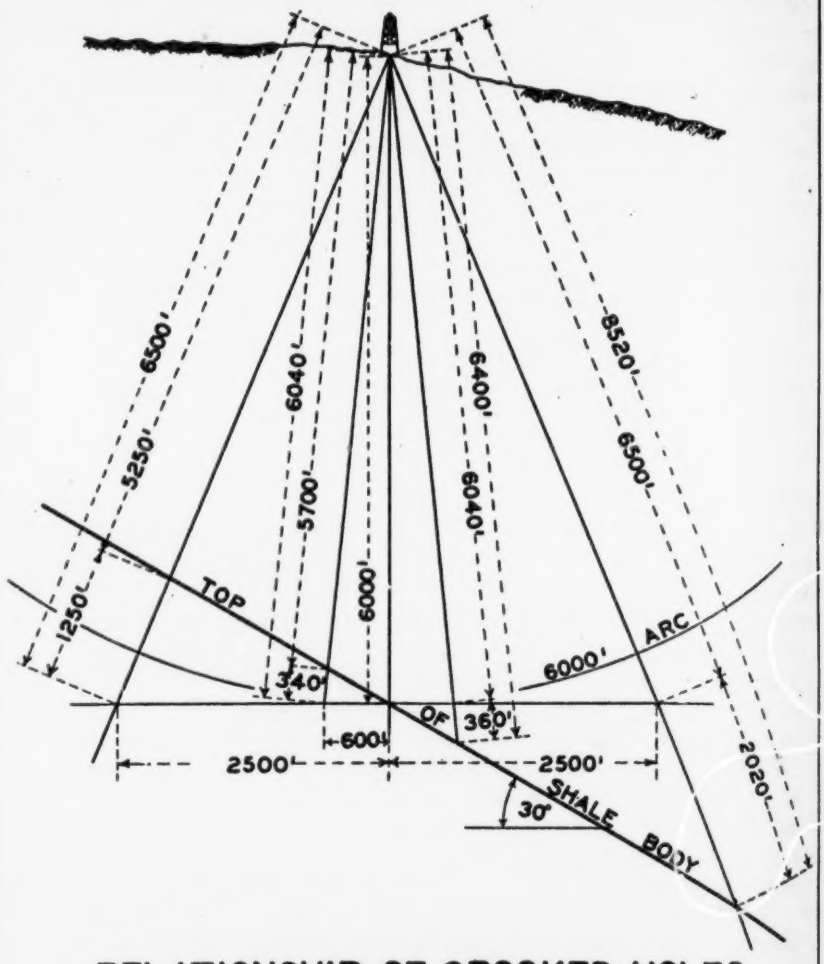
The Long Beach oil field probably holds the world record for crooked holes. The subsurface contours of this field show the strata on the southwest flank of the structure to be lying at an angle of approximately 30 degrees from the horizontal, while the extreme western end of the field is nearly flat.

In the case of wells drilled to less than 3000 feet in stratified structures, it is usually quite simple to choose the cementing depths for casings by correlation. In such cases, no great amount of coring is necessary, because usually such wells are nearly vertical. However, where wells are deep and there are no satisfactory marker strata, it is not so easy to determine the cementing points and tops of the productive measures. Especially is this true when the strata are greatly inclined. If deep wells were straight and vertical, the problem would be simplified. Since they are not, and most wells drift considerably, the use of correlation, in its simplest form, becomes practically useless for determining the proper cementing depths. In such cases, extensive coring becomes the rule. Without definite marker strata, the conclusions drawn from coring may be entirely erroneous.

Examples

Suppose it is assumed that a well will be drilled on a structure having strata lying at an angle of 30 degrees from the horizontal. A water string is to be cemented in a 20-foot shale body lying at 6000 feet below the derrick floor. This stratum overlies about 500 feet of oil sand and shale. Assume that the depth of the shale body has been determined by corrected correlated data on surrounding wells. The operator may say that coring will be commenced at 5900 feet. In all probability the hole will drift away from vertical. It is possible that the hole may drift up structure, down structure, along the structure, or in an intermediate direction. The well may drift as much as 2500 feet horizontally in 6000 feet vertical depth.

FIGURE 1



RELATIONSHIP OF CROOKED HOLES
—TO—
AN INCLINED STRATUM

ACCOMPANYING PAPER "CROOKED HOLES"

—BY—

PAUL J. HOWARD

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL & GAS

R.D. BUSH, STATE OIL & GAS SUPERVISOR

—SCALE—

0 1000 2000 3000 FT.

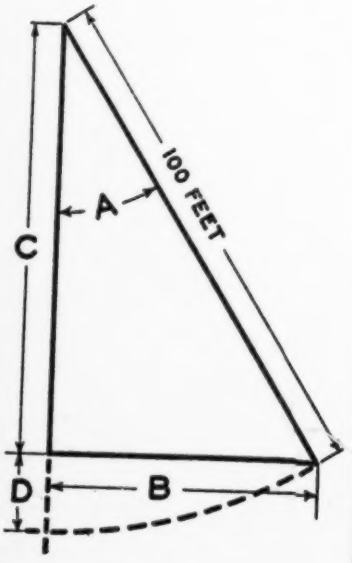
TABLE I

HORIZONTAL DRIFT & VERTICAL DEPTH PER 100 FEET OF MEASURED DEPTH AT DIFFERENT INCLINATIONS FROM VERTICAL

— BY —
ALEXANDER ANDERSON

ACCOMPANYING PAPER "CROOKED HOLES"
— BY —
PAUL J. HOWARD
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS
R.D. BUSH. STATE OIL & GAS SUPERVISOR

A INCLINATION OF HOLE FROM VERTICAL	B HORIZONTAL DRIFT PER 100 FT. OF HOLE	C VERTICAL DEPTH DRILLED PER 100 FT. OF HOLE	D LOSS IN VERTICAL DEPTH PER 100 FT. OF HOLE
0°	0.0	100.0	0.0
5°	8.7	99.6	0.4
10°	17.4	98.5	1.5
15°	25.9	96.6	3.4
20°	34.2	94.0	6.0
25°	42.3	90.6	9.4
30°	50.0	86.6	13.4
35°	57.4	81.9	18.1
40°	64.3	76.6	23.4
45°	70.7	70.7	29.3
50°	76.6	64.3	35.7
55°	81.9	57.4	42.6
60°	86.6	50.0	50.0
65°	90.6	42.3	57.7
70°	94.0	34.2	65.8
75°	96.6	25.9	74.1



Suppose, first, that the hole drifts up structure. The cores show gray sand and shale from 5900 to 6000 feet, drill pipe measurements, with no shale bodies over 10 feet thick. The well is surveyed and the bottom is found to be 2310 feet horizontally, up structure from the mouth of the hole. If the hole lay in a straight line from the surface to this point, the bottom of the hole would be about 230 feet below the body of oil sand and about 730 feet below the shale body desired. (See Fig. 1.) These values may be discounted somewhat, as the hole would probably take a curved path from the mouth to this point.

Mr. Alexander Anderson compiled the results of surveys of 255 rotary drilled holes made during the years 1925 to 1928, inclusive. This table showed that the average horizontal drift of a 6000-foot hole was about 600 feet. However, he believes that the actual average for all wells of this depth would be about 25 per cent less than his average because of the considerable number of unsurveyed comparatively straight holes. Since 1928 Mr. Anderson has surveyed and compiled the table of results of surveys of the 183 rotary drilled holes, and these results are shown in Table 2. Prior to 1928 the amount of drift of a rotary hole and the costly results in many instances were little realized, but since that time there has been a very material improvement in the verticality of oil wells, and this is clearly shown in Table 2 where the average horizontal drift of a 6000-foot hole is about 290 feet. .

For purposes of illustration, using Mr. Anderson's average drift of 600 feet per 6000 feet corrected depth, and assuming the drift is directly up structure, we find the bottom of the hole at 6000 feet, drill pipe measurement, about 280 feet below the shale body desired, or about 180 feet in the oil sand when coring was started. A thinner body of oil sand could have been passed up entirely.

Suppose, next, that the hole drifted 2310 feet down structure as determined by a survey at 6000 feet. In this case, the hole would have to be drilled about 2520 feet farther, that is, to 8520 feet, to reach the shale body desired. Actually, this distance would be greater, due to the fact that the hole would probably be curved. Suppose that a shale body had been encountered at about 6000 feet and a string of casing had been cemented. What would have been the result? Probably nothing but water sand. The well next to this one might have been cemented at about the same depth and become an excellent producer. Similar cases do occur. Suppose, now, we use Mr. Anderson's average drift of about 600 feet per 6000 feet corrected depth. This drift down structure would place the bottom of the hole at 6000 feet, about 360 feet above the shale body in the line it was traveling. Actually, this distance would be greater because of the curved path of the hole. It can readily be seen that the wrong shale body might be used in this 360 feet with very discouraging results.

Next, assume that the hole drifted along the structure, but neither up nor down. First, assume that a survey at 6000 feet revealed a drift of 2310 feet horizontally. In this case, the hole would have to be drilled about 500 feet farther before reaching the shale body. Using the average 600-foot drift per 6000 feet corrected depth in the same direction, the hole would reach the shale body at about 6040 feet provided the hole was drilled in a straight line from top to bottom. Both

TABLE 2—NOVEMBER, 1929

DRIFT AND INCLINATION OF OIL WELLS

Some Data From Underground Surveys of 183 Rotary Drilled Holes in California, 1,818,906 Feet of Hole and 11,856 Individual Survey Readings

By Alexander Anderson

Number of holes	A Depth in feet (measured depth)	B Horisontal distance from mouth to bottom of hole (in feet)			C Inclination of hole from vertical (in degrees and feet per 100)			D Amount of drift from vertical (in feet)		
		Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average
183	500	30	0	5.8	7° 30′ 13.1 ft. per 100	0° 00′	1° 23′ 1.8 ft. per 100	31	0	6.9
183	1,000	130	0	19.4	12° 45′ 22.1 ft. per 100	0° 10′ 0.3 ft. per 100	2° 14′ 3.9 ft. per 100	132	5	23.6
178	2,000	531	3	56.2	29° 00′ 48.5 ft. per 100	0° 15′ 0.4 ft. per 100	3° 24′ 5.7 ft. per 100	540	15	70.2
170	3,000	730	7	103.5	29° 00′ 48.5 ft. per 100	0° 20′ 0.6 ft. per 100	4° 19′ 5.7 ft. per 100	738	21	135.4
155	4,000	717	7	141.5	22° 00′ 37.5 ft. per 100	0° 20′ 0.6 ft. per 100	5° 22′ 9.4 ft. per 100	796	28	203.4
124	5,000	831	3	211.9	28° 00′ 46.9 ft. per 100	0° 30′ 0.9 ft. per 100	8° 03′ 14.0 ft. per 100	835	101	304.7
79	6,000	844	33	291.2	27° 00′ 45.4 ft. per 100	1° 00′ 1.7 ft. per 100	8° 50′ 15.4 ft. per 100	985	129	422.5
52	6,500	1,033	35	324.6	27° 00′ 45.4 ft. per 100	0° 30′ 0.9 ft. per 100	8° 48′ 15.3 ft. per 100	1,081	143	463.2
32	7,000	900	60	372.8	32° 30′ 55.2 ft. per 100	1° 30′ 2.6 ft. per 100	11° 54′ 21.9 ft. per 100	1,100	308	535.0
10	7,500	769	186	474.1	32° 00′ 53.0 ft. per 100	6° 20′ 11.0 ft. per 100	18° 48′ 31.2 ft. per 100	1,012	377	695.3
4	8,000	1,035	349	602.7	31° 00′ 51.5 ft. per 100	10° 15′ 17.8 ft. per 100	20° 58′ 35.8 ft. per 100	1,130	466	730.0

Explanation of Terms—

"B" is the horisontal distance between a vertical line through the mouth of the hole and a vertical line to the hole at the listed depth.

"C" is the inclination from vertical at the listed depth.

"D" is the total drift from vertical down to the listed depth.

In the case of a well drifting in the same direction from mouth to bottom "B" and "D" would be equal.

would increase this distance. Holes drifting between the directions of dip and of strike of the strata would have values falling between those given.

It can be seen readily that when holes drift, even to the average extent, cores may indicate a gray sand at a depth where oil sand was expected. Also, cores taken from about the proper estimated depth may seem to indicate that the proper shale body for landing casing has been reached, when in reality the shale body cored may be several hundred feet from the proper stratum. Crooked, unsurveyed holes easily account for many apparent inconsistencies in productive areas. It becomes almost impossible to drill successful wells in fields such as the Long Beach field without the use of surveys.

Some operators rely to some extent upon the dip of the strata as shown in the cores. If a hole is drilled straight down into a structure having a 30-degree dip the cores will show 30-degree dips. If the hole drifts down structure the dips will appear to be over 30 degrees. If it drifts directly up structure the dips will appear to be less than 30 degrees. If it drifts directly along the structure, that is, along the strike of the strata, the cores will show dips of 30 degrees or more, depending upon the extent of the drift. There are, then, points between the line of strike and the line of dip up structure where the cores would show 30-degree dips without the hole being straight. Since holes do not usually go in straight lines, it is possible for them to drift a great distance down structure, or up structure, and then change direction. Cores taken after such a change could be very misleading. The best way to determine the position and direction of a well is by the use of acid bottles, coring, surveying, and correlation, followed by a comparison of results.

Oil Well Surveying Instruments.

The need for surveys has become more urgent since wells have been drilled to depths of over 4000 feet. The demand for surveys has resulted in much experimental work and has brought many instruments into this field. The writer does not believe that there are any instruments or methods of surveying oil wells that can be depended on for absolute accuracy under all conditions and at all times.

Any method by which a complete survey is made must provide means for determining the amount of inclination of the hole at selected points and, in addition, the direction of this inclination. The pendulum swinging from a ball and socket joint, the level bubble, and the action of gravity upon a freely moving object, serve as the usual means for obtaining the amount of inclination of a hole. The orientation of drill pipe into the hole and the magnetic compass serve as the usual methods of obtaining the direction of inclination of a hole. To the best of the writer's knowledge, the gyroscope has never functioned successfully in any oil well surveying instrument. The methods of surveying employed by Mr. Olsen and the Trojan Exploration Company are entirely different from the others and will be discussed later.

There is no need to comment on the methods used for determining the angular inclination of a well, as all of these methods should be quite successful. However, something should be said in regard to the

methods of determining the direction of dip. The proponents of the methods involving the orienting of drill pipe into the hole have little faith in methods involving the use of the magnetic compass. They state that the needle will be affected by sidetracked tools or pipe, by the casing in which it is run—if run in casing—by the drill pipe to which the instrument is attached, by tools or casing in other nearby wells, and by scattered particles of steel left in the walls worn or broken from the drill bits. The proponents of the magnetic compass claim that unless the metal above described is quite close to the compass, it will have no effect. They state that the methods involving the use of oriented drill pipe may be in error because some torque may be in the drill pipe underground which is not transmitted to the surface where it can be measured. In at least one case three different survey methods were used for one well and each showed the bottom of the hole in a different quadrant of the compass.

It should not be supposed that because surveys do not always check out they are usually wrong. In fact, it may be said that some surveys are nearly always correct. The information obtained from surveys, acid bottles, and cores, forms the best available information about the amount of inclination and the direction of the inclination of a well and should be accepted as such.

The following instruments or devices are used in California for determining the angle of inclination and direction of inclination of oil wells. The writer has listed all of the methods with which he is familiar, but it is probable that others will have been developed by the time this article has gone to press.

Instruments and Methods for Determining the Angles of Inclination Only.

Acid Bottle

Glass bottles, partially filled with fresh hydrofluoric acid and water, are commonly used for determining the inclination of oil wells. Their use depends upon the chemical property of hydrofluoric acid to etch glass. Bottles are run into the wells in such a manner that their axes are parallel to the casing or to the walls of the well. They are permitted to rest at the proper depth for 15 or 20 minutes. By the end of that time, the acid will have attacked the glass below the fluid so as to leave an etched line in a horizontal plane around the bottle at the surface of the acid. After time has been allowed for etching, the bottle is removed from the hole. The inclination of the hole is equal to the vertical angle between the plane through the etched line and the axis of the bottle. Many times considerable difficulty is experienced in reading the angle of inclination because of a "fuzzy" line caused by the meniscus at the top of the acid. This difficulty may be eliminated to a great extent by pouring very light lubricating oil on top of the acid, thus destroying the meniscus. The greater the diameter of the bottle, the more accurately can the angle be read. The action of the acid on the bottle while removing it from the hole usually is not sufficient to destroy the etched line.

Acid bottles may be run in bailers, on the bottom of drill pipe, or in "go-devils" which are dropped, and pumped if necessary, through drill pipe.

Bottles must be placed in tight containers to prevent the pressure in deep holes from breaking them or forcing the rubber stoppers into them. Bottles are usually fitted into recesses only slightly larger than themselves. They are often seated on rubber sponge, and wrapped with rubber bands, to eliminate breakage due to shock. When "go-devils" are used, additional methods should be employed to take up the shock resulting from striking the tool joints and bit.

One particular type of "go-devil" is constructed as follows: A section of pipe about 10 or 12 feet long is provided with a shock absorber at the lower end and a screw connection for the acid bottle container at the upper end. The shock absorber consists of a plunger projecting about 6 inches below the body of the "go-devil." This is followed by a spring for absorbing the shock as the lower end of the plunger strikes the tool joints and bit. The lower end of the plunger is tapered and has about the same maximum diameter as the body of the apparatus. Two slots are cut in the head of the plunger to permit circulation when it strikes the bit and to allow the fluid to run out of the drill pipe as it is pulled from the hole. The body of the "go-devil" is perforated to permit access of the fluid. The container for the acid bottle has the same diameter as the body of the "go-devil," and has a recess just large enough for a ¾-inch by 2½-inch bottle with a piece of rubber sponge above and below it. The top of the acid bottle fitting consists of a hexagonal headed plug, which, when screwed up, closes the acid bottle container and secures it to the body of the "go-devil."

"Go-devils" are run just previous to pulling the drill pipe. While the acid is acting, the drill pipe should be raised or lowered, without rotation, about every three minutes to prevent it from sticking. In certain cases "go-devils" have been found hung up in the drill pipe, but when properly designed this should not occur.

Elliott Drift Indicator

The Elliott drift indicator determines the inclination of a hole by use of a plumb bob which hangs in an oil bath. The plumb bob is attached to a rigid arm extending downward from a ball and socket joint, located on the bottom of a plunger. Just below the plumb bob is a semihard rubber disc shaped to form a section of a sphere with a radius equal to the distance from the point of the plumb bob to the ball and socket joint. Concentric rings are inscribed about its center at intervals equivalent to 2-degree inclinations. When the drill pipe has been run to the desired depth, the pumps are started and the pressure of the fluid forces the plunger down. As a result, the point of the plumb bob is forced into the disc. Lugs in the side of the instrument prevent the plunger from rising and thus hold its point in the disc until the instrument is dismantled. The position of the impression of the bob indicates the inclination of the hole.

The instrument is placed in a special section in the drill stem which has the same outside diameter as the tool joints, and provides for unrestricted circulation around the instrument. This instrument may be placed at any desired point in the drill stem and drilling may continue as long as desired after obtaining the impression.

Only one reading may be taken with each round trip of the drill pipe. This instrument was devised primarily to replace the acid bottle, which can not be left in the hole while drilling is in progress.

Hercules Crooked Hole Detector

The Hercules crooked hole detector provides a quick method of locating crooks in a hole and of giving the inclination, but does not provide means of determining the direction of the inclination. The instrument is run into the hole from a reel on a truck especially provided for the purpose and may be run in open hole. In case it should become stuck, the line can be pulled loose directly above the case and the instrument easily sidetracked.

This instrument is provided with a pendulum which swings from a ball and socket joint with an arm extended above the joint. It can move in any direction. The top of the extended arm is provided with a point which is held in contact, by a light spring, with a concave spherical surface consisting of concentric rings of brass wire imbedded in an insulating medium. Each ring is connected to an electrical resistance. The wires are spaced so that each wire represents an angular dip of 1 degree. Angles up to 20 degrees may be read. The apparatus is placed in a steel case and is completely immersed in transformer oil to prevent collapse.

The instrument is run into the hole on a duplex insulated steel line. An electric current at 5 volts is passed from a storage battery through the lines and instrument to a millimeter. The amount of current flowing is dependent upon the resistance thrown into the circuit by the instrument in the hole, and this in turn is dependent upon the angle of inclination of the hole. The scale on the millimeter is graduated to read in degrees of inclination. The inclination at any point can then be read at the surface as the instrument is lowered in the hole.

Devices Used in Conjunction With Oriented Drill Pipe.

Alexander Anderson Survey Instrument

Alexander Anderson is the pioneer oil well surveyor of California, and he has achieved a remarkable reputation for good work. Patents on his surveying instrument and method of orienting drill pipe into the well have been applied for, and he does not care to divulge the construction of his instrument until the patents have been secured.

However, it is known that photographs are taken every 4 minutes and 10 seconds by clock control, and that records are made in these photographs which indicate the dip of the hole. Eighty-eight photographs may be taken with one run of the drill pipe. Five independent records are made on each photograph which precludes the possibility of accepting the result of one erroneous reading. Vertical angles can be recorded up to 60 degrees from vertical. One photograph is usually taken for each stand of drill pipe run in the hole. Mr. Anderson provides facilities for any operator to test the accuracy of the instrument for himself.

The instrument is attached to the bottom of the drill pipe. The direction in which the reference point of the instrument lies is determined

by use of a sighting device placed in the bottom of the instrument case. Two clamps are attached to the drill pipe near the top of each stand before it is lowered into the well. The lower clamp is circular and graduated in degrees around part of its circumference. The top clamp has a horizontal circular hole through it, forming a socket, at a tangent to the drill pipe. A sighting device is fitted into this socket. The device consists of a piece of ¾-inch pipe about 3 feet long with front and rear sights attached. The front sight is formed by a long vertical wire, and the rear sight consists of a vertical row of small holes.

The sight is aligned with a previously designated distant object, and a row of stakes provided for emergencies, and the clamp is then tightened. A level bubble is provided for placing the sighting device in a vertical position. The lower clamp may be set with its zero reading at a pointer which projects from the upper clamp. This is rarely done except when setting whipstocks. The sighting device is then withdrawn and the drill pipe lowered. After the next stand is made up, another sighting device, kept on the derrick floor, is fitted into the same socket.

Along the side of the derrick nearest the distant object, a number of ¼-inch slats are laid in line, end to end, on suitable planks. A zero point on the slats is marked in line with the distant object and the sight bar hole. After lowering each stand of pipe, and placing the sighting device in the hole, a punch target, moved along the slats by a workman, is brought into the line of the sight and a mark is made on the slat. The marks are properly numbered. Knowing the perpendicular distance of the slats from the drill pipe, and knowing the distance along the slats from the zero point to the punch mark, the angle through which the drill pipe has rotated can be calculated. The distances of the various punch marks from the zero point are measured, and the angles calculated after leaving the derrick. When desirable, instead of using the slats, the upper clamp can be loosened and the bar sighted on the distant point. The angle turned by the sighting device is then read on the lower clamp.

The drill pipe is oriented into the hole in order to determine the direction of the reference point of the instrument at the time each photograph is taken. Thus, the photographs give the amount of inclination and the direction of inclination as measured from the reference point of the apparatus and the orienting calculations give the direction of the reference point at the corresponding positions in the hole.

Jack Johnson Instrument

The Jack Johnson instrument is constructed and operated in a manner similar to that described later as the Pollard and Bonner instrument and therefore will not be discussed here.

R. P. McLaughlin Clinograph

This clinograph operates on the plumb bob principle for determining the angle of inclination of a hole. The direction of inclination is obtained by orienting the drill pipe into the well. Two plumb bobs, moving in vertical planes at a right angle to each other, are attached by suitable mechanisms to two corresponding styluses which draw red

and blue curves on a continuous moving chart. The chart is ruled lengthwise with a series of light lines, representing one-foot intervals, and a heavy line is drawn at the central position of the paper. The chart is ruled vertically at intervals representing one minute of time. Clockworks, synchronized with a chronometer used above ground, wind the chart on a roller at the proper speed.

Assuming that the red line indicates the amount of inclination in a vertical north and south plane and the blue line indicates the amount of inclination in an east and west vertical plane, the red line, if above the central line, indicates inclinations to the north, and if below the line, inclinations to the south. The blue line, if above the central line, indicates inclinations to the east, and if below, inclinations to the west. Any inclinations between these directions are shown by components in two of the above directions. The vertical divisions on the chart indicate the distance, in a north, south, east, or west direction, of the bottom of the drill pipe from the top of the bottom stand. The deviation of the bottom of the drill pipe from a vertical line through the mouth of the hole is actually the algebraic sum of the deviations recorded down to that depth.

When the instrument is run in the hole, the north or zero point of the instrument does not remain in that direction, due to the rotation of the drill pipe as it is lowered into the hole. However, its position is determined for each stand of pipe by measuring its rotation. By calculating the horizontal angle between the zero point in the instrument and true north, the direction of inclination may be readily plotted.

The instrument, in a brass case, is fitted into a blunt-nosed steel cylinder which is attached to the bottom of the drill pipe. Circulation holes are provided near the top of the cylinder. The drill pipe is oriented into the hole in a manner somewhat similar to that used by Alexander Anderson. Two sighting devices are pointed at a marker located at some distance from the derrick. One sight remains stationary, and the other, attached to the drill pipe, may turn. The number of degrees through which it turns is measured for each stand of drill pipe run into the hole. Mr. McLaughlin claims there is no torque in the drill pipe below ground that is not transmitted to the surface where it can be measured.

Oil Well Surveying Company of California Instrument

The instrument of Oil Well Surveying Company of California takes photographs of an object, the position of which at any time is dependent upon the action of gravity. The company does not wish to disclose the mechanical details of this instrument. The position of the object is always on the low side of the hole. The direction of dip of the hole is in a line through the object to the center of the photograph. The position of the object in a vertical hole is at the center of the photograph and the amount of displacement of the object from the central position is a measure of the angle of inclination (from vertical) of the hole. The position of the zero mark in the photograph with respect to north is obtained by orienting the drill pipe into the hole. This instrument

measures vertical angles up to 60 degrees. Every four minutes a clock makes electrical contacts which cause the film to be turned and a light to appear. Dry cells provide the necessary electric power. Three hundred and fifty photographs can be taken before removing the instrument from the well.

In order to read the photograph accurately, the figures are magnified by the use of a moving picture projector, and the readings are made from the screen upon which the image is thrown. A test stand is provided in which the instrument may be placed for checking the photographic readings against a measured angle set off on the stand.

The instrument, housed in a steel case, is attached to the bottom of the drill pipe, a mark on the case indicating the position of the zero mark in the instrument. Its direction is determined by use of a transit. The pipe is then oriented into the hole by attaching a surveyor's transit to the top of each stand of drill pipe as it is lowered into the hole. Before lowering the pipe, the transit is sighted on a point more or less distant. When the stand has been lowered, this instrument is again sighted on the same point. The angle through which the telescope has turned is a measure of the rotation of the pipe. The algebraic sum of the twists, right and left, indicates the position of the zero line in the oil well surveying instrument. Two plumb lines, in line with the transit, hung from the top of the derrick, serve as additional orienting sighting points.

Pollard and Bonner Instrument

The Pollard and Bonner instrument makes use of the plumb bob principle for determining the amount of inclination of wells. The direction of inclination is determined by orienting the drill pipe into the hole. A very large plumb bob, hanging from a universal joint, is attached to two suitable mechanisms, which in turn are connected to two styluses. The two mechanisms move so as to resolve the movement of the plumb bob into two motions at a right angle to each other. The styluses record these movements on a moving strip of paper which is wound up by an electric motor driven by dry cell batteries. The drill pipe is oriented into the hole in such a manner that the plane of the moving chart is held in an east and west direction. A fixed stylus draws a blue line near the edge of the paper. The stylus showing the east and west inclination draws a black line and the one showing the north and south inclination draws a red line. The blue line is used as the reference line, but the zero deflection position is at a known distance from the blue line. A special scale has been devised to read the inclinations recorded by the styluses. They are read directly in feet per stand of drill pipe in an east or west direction, and in a north or south direction. The true inclination is the resultant of these two. The wavy sections, in the lines drawn, indicate the times when each stand of drill pipe was lowered into the hole. Straight lines are drawn while the drill pipe is held in the slips. In order to indicate satisfactorily the proper stands of pipe, the drill pipe is left in the slips an extra long time before running each tenth stand of pipe. This results in the drawing of conspicuously extra long straight lines.

When making the survey, the instrument, in a brass case, is fitted into a steel pipe. A plug is screwed into the bottom of the pipe. The top of the plug is cut by a horizontal notch, into which fits a bar on the bottom of the instrument case. This bar represents the north and south direction of the instrument. In the bottom of the plug, directly below and parallel to the notch, a sighting hole has been drilled. The drill pipe is started into the hole with the sighting hole in a north and south direction. An aiming point is placed at about 600 feet from the derrick. A clamp is fixed to the top of the first stand of drill pipe. This clamp is provided with a sighting bar which moves horizontally about a pin through the clamp. A telescope is attached to this sighting bar. With the sighting hole at the bottom of the pipe in a north and south direction, the telescope is sighted on the aiming point and the sight bar is clamped in position. The telescope is then removed and the stand of drill pipe lowered into the hole. When the next stand has been made up, a telescope on the derrick floor is attached to the clamp now above the rotary table. The drill pipe is rotated sufficiently to bring the line of sight of the telescope on the aiming point. Another clamp is then fixed to the top of the new stand of drill pipe, and the process repeated. It is assumed that whatever torque is given the drill pipe at the surface will be transmitted, in an equal amount, to the bottom of the drill pipe, and thus preserve the orientation of the instrument itself.

Spherical Oil Well Surveying Company Instrument

The Spherical Oil Well Surveying Company instrument makes use of the plumb bob principle for determining the inclination of the hole from vertical. Oriented drill pipe is used for determining the direction of the inclination. Two weights, operating on the plumb bob principle, are connected to two styluses by suitable mechanisms. The weights move in vertical planes at a right angle to each other and thus the inclination of the hole at all points is resolved into inclinations in vertical planes at a right angle to each other. The record charts consist of two hemispheres with the convex sides down. These hemispheres retain a horizontal top surface by the use of the four-point suspension principle. Spiral lines are drawn around each hemisphere, starting at the top. The amount of deviation of the styluses from these lines is a measure of the inclination of the hole in the corresponding vertical plane. The hemispheres are graduated from the top edge to bottom with time interval lines, corresponding to lines of latitude. A clock mechanism, synchronized with a clock at the surface, drives each stylus in the path about the hemisphere. A continuous record is made as the drill pipe is lowered into the hole.

The pipe is oriented into the hole by the use of a special sight mounted on the top of the drill pipe. Below the sight is a graduated circle on which the rotation of the drill pipe is measured. The sight in the derrick is brought to bear on a fixed distant target. It is again brought on the target when the stand of drill pipe has been lowered. The angle through which the sight must be rotated is a measure of the rotation of the drill pipe.

It is claimed that the use of the hemispheres results in a more accurate record of deviations in spiral holes. It is also claimed that this instrument may be used to indicate the rotations of the drill pipe, at the location of the instrument, as the pipe is lowered into the well.

Devices Making Use of the Magnetic Compass.

Acid Bottle and Maas Compass

The acid bottle is used in a brass bailer in a manner similar to that previously described. However, in addition to the acid bottle a compass needle, moving in a gelatin or tallow bath, is used. After a limited time the tallow or gelatin hardens and holds the compass in the position it assumed when the acid etching was made. The compass case is held in a definite position with respect to the acid bottle and thus enables the direction of inclination of the hole to be determined. The line etched by the acid in the bottle indicates the angle of inclination of the hole.

Ahlburg Instrument

The Ahlburg instrument is owned by the Oil Well Recording Company, and is operated exclusively by Whealton-Townsend Company. It is similar to the one described later as the McCoy instrument. The Ahlburg instrument is being changed at the present time so that the photographs will show the temperature in addition to the positions of the compass and level bubble.

Allan Oliver Instrument

The Allan Oliver instrument operates on the plumb bob and magnetic compass principles. Only one set of readings can be taken with each run of the device. However, the instrument is usually run on a sand line and little time is required to obtain the readings. The instrument is placed in a brass case at the bottom of a 30-foot brass bailer. If desired, the instrument and brass pipe can be run on the bottom of drill pipe. These instruments are rented to oil companies by the month and may be used as often as desired.

The inclination of the hole is obtained by the use of a plumb bob, hanging from a universal joint, and a circular chart. At the predetermined time, which has been set on a clock in the instrument, the chart is raised to a point where it is pierced by the point of the plumb bob. Circles representing 1-degree inclinations are drawn about the center of the chart. The position of the perforation indicates the amount of inclination. The direction of inclination is obtained by use of a horizontally swinging compass. At the predetermined time, the compass is automatically clamped in its position and remains so until released above ground. The clock makes an electrical contact at the predetermined time, which causes an electric motor, driven by dry cell batteries in the instrument, to operate the mechanisms which move the chart up to the plumb bob and clamp the compass in its position. The direction of inclination is in a line through the perforation to the center of the chart. The bearing of this line is obtained by reference to the compass clamped in its magnetic north position.

Argabrite Instrument

The Argabrite instrument operates on the plumb bob and magnetic compass principles. It differs from others of this class in that the readings are transmitted electrically to the surface where they can be read as taken. This permits the instrument, which is run in the hole on a line, to be used for check reading at any desired depth.

The instrument, operating in a universal pendulum, is completely immersed in oil. The universal pendulum consists of a cylinder, weighted down at one side of the bottom, and provided with central bearings at each end which permit unhampered movement about them. The electrical connections with this pendulum are made by brush and ring contacts which are especially designed to eliminate friction.

The compass, moving in a horizontal plane at all times, is provided with a ring about its outer edge. This ring is wrapped with nichrome resistance wire. A light spring holds the compass above this resistance ring. When an electric contact is made above ground, a solenoid, consisting of a hollow cylinder wrapped with copper wire, sets up a strong magnetic field which draws down a weight attached to the compass and thus causes the compass to make an electrical contact with the resistance wire. A current is then passed through the compass and resistance wire. The resistance in this latter circuit is balanced by use of a galvanometer, in a Wheatstone bridge, against a standard resistance coil which is graduated in degrees and minutes to correspond to the compass direction, that is, in proportion to the amount of resistance thrown into the circuit by the compass needle contact.

A semicircular section of a disc, with nichrome wire wrapped around a ring placed on its circular edge, is hung, from the mid-point of its diameter, in a vertical plane in line with the weighted section and axis of the universal pendulum. Its design causes it to move in a vertical plane lying in the direction of drift of the hole at the point where the reading is taken. The center point of the semicircle hangs directly down, as does a plumb bob. When a reading is to be taken, a current is passed through a second solenoid which causes a pointer to make contact with the resistance wire. Another current is then passed through this pointer and the resistance wire. The amount of resistance thrown into the circuit is a measure of the inclination of the hole. This resistance is balanced in a Wheatstone bridge against a known resistance, and the angle of inclination is read directly.

Mr. Argabrite's instrument is equipped with a pyrometer connection which enables the temperature to be taken when the other readings are made. Knowing the temperature at given depths, corrections can be made for the changing resistance of the lines conducting the current to the resistance coils. These corrections are not large as the wire leads have a resistance of only 42 to 43 ohms, while the compass and vertical circle coils have resistance of 11,000 ohms and 4000 ohms, respectively.

Two 12-volt storage batteries are used for operating the solenoids, and dry cells of 3-volt intensity furnish the current for determining the inclination and direction of the hole. A movement from one wrap of nichrome wire to the next one is clearly indicated.

The instrument has an over-all diameter of 3 inches. Its brass container is filled with lead at each end to give it additional weight. It is run on a cable, composed of four electrical conductors, in open hole, and in casing, using a special reel mounted on a truck.

Dale and Nielson Instrument

The Dale and Nielson instrument operates on the plumb bob and magnetic compass principles. A plumb bob, with a lever arm above, causes two styluses to draw lines on two moving strips of paper as the drill pipe is lowered into the hole. A steel needle, on one end of which two bristles are fixed, is held in position by the magnetic field set up by a heavy compass needle below. The former moves in the same direction as the compass needle, and at fixed time intervals scratches the smoked inner surface of a horizontally corrugated paper cylinder. The heavy compass needle moves in a horizontal plane at all times while the other needle moves in a plane at a right angle to the axis of the instrument. The positions of the stylus lines on the two rolls of paper indicate the amount of inclination of the hole from vertical and the direction with respect to the centers of the brass tables over which the paper strips move. The stylus marks indicate two sides of a right triangle and the third side is calculated. The corrugated cardboard cylinder is definitely located with respect to the brass tables. When the inclination and direction with respect to the tables has been calculated, the angle between this direction and magnetic north is then determined. The angle obtained can then be corrected to read in deviation from true north.

The instrument is operated by clock works which are set in motion by a jerk on the drill pipe. It operates for one minute and twenty seconds after each jerk. The apparatus fits in a high chrome steel nonmagnetic case which is screwed on to the bottom of the drill collar. Before lowering each stand of drill pipe, the pipe is given the jerk which sets the mechanism in motion. When the drill pipe is in the slips again, time is allowed automatically for the compass needles to come to rest, after which a raised section of the corrugated cardboard cylinder is moved past the needle, thus making the two bristle marks. However, these marks are only made every two stands.

The instrument shows the number of rotations made by the drill pipe as it is run in the hole. A specially designed thermometer records the maximum temperature obtained. It normally requires one and a half minutes per stand to make a survey by this method.

Mr. Dale states that sometimes this instrument may be used satisfactorily inside of one string of casing, but as a precautionary measure, when surveying inside of casing, the drill pipe is now oriented through the cased part of the hole. He states that the casing ordinarily has no attractive forces on the compass itself, but merely serves to shield the compass from the natural action of the magnetic forces of the earth. He states that in one case his instrument showed the drill pipe had made three revolutions below ground while only a little more than two were noted at the surface. The drill pipe is oriented into the hole by using an instrument somewhat similar to a transit on top of the drill pipe. Before each stand is lowered into the

hole the sight is pointed at a distant object. At the derrick floor, the sight is again pointed on the same object and the angle through which the sight has turned is measured. This angle is a measure of the rotation of the drill pipe at the top of the hole. When used in open hole a survey can be started at any desired depth by lowering the drill pipe to that point and rotating it a number of times before proceeding with the survey. The stylus marks made on the paper charts clearly indicate the time when the pipe was rotated.

Macready Orientation Core Drill

The Macready orientation core drill was devised primarily for use in orienting cores in wildcat drilling. It operates on the magnetic compass and plumb bob principles, although no actual plumb bob is used. The compass needle, turning on a jewel bearing, has a brass framework suspended below it and around the vertical pin which supports the compass needle. The framework supports a brass pointing vane about ½ inch wide and pointed at the end below the north point of the compass. This vane moves with the compass. At the center of the vane, inside the framework, is a hole about ¼ inch in diameter. When the instrument is vertical, the center of this hole and the pin supporting the compass needle coincide. When the instrument is inclined, the center of the hole moves away from the pin supporting the compass a distance proportioned to the inclination of the hole and in a direction directly opposite to the direction of inclination of the hole. The position of the vane at predetermined time intervals is recorded by the use of a roll of photographic exposure paper moving beneath the vane. An electric light operated by dry cells and turned on by clock works furnishes the necessary illumination.

The old type of instrument made just one exposure and at a time set on a clock in the instrument before lowering it into the hole. Sufficient time was allowed for running the drill pipe to bottom and taking a core. Since the time for taking a core was rather indefinite, this system was not completely satisfactory. The spline swivel was next developed which made it possible to take the single picture at any time desired.

A mark is shown in the photographs which is definitely located with respect to a point on the bottom of the inner core barrel which thus permits orienting the cores. The outer core barrel is similar to others commonly used, but the inner core barrel has a shoe cut with vertical lands and grooves which are provided with chisel edges at the bottom. The core moves up through this shoe and is cut with the land and groove markings. The trimmings are carried away by the circulating fluid. Mr. Macready has taken cores in shale 15 feet long without a break. After the cores are removed, they are oriented with respect to the compass and inclination of the hole. Then the dip and direction of dip of the bedding planes in the cores are readily determined.

The new type of instrument taking a number of photographs may be used without a core barrel for making a well survey.

The instrument is provided with a brass case which fits in the center of a 12-foot section of heavy bronze drill pipe to which the outer core barrel is attached.

McCoy Instrument

The McCoy instrument consists essentially of a compass, and level bubble moving in a glass container shaped as a section of a sphere, with lines etched concentrically about the position of the bubble when the instrument is vertical. The rings are drawn at distances equivalent to each degree or each two degrees of dip. An electric light is placed below both the compass and level bubble container. A camera takes a photograph every five minutes of the position of the bubble with respect to the compass. The angular distance between the compass north point and the bubble gives the magnetic bearing of the inclination and the concentric line at which the bubble is located shows the angle of inclination of the hole with respect to vertical.

The mechanical construction is as follows: The apparatus is held in a brass frame about 5 inches in diameter and 56 inches in length. The two lower sections contain dry cell batteries. Above the batteries is a cylindrical aluminum casting. A light bulb is placed in the lower part of the casting and is operated by the dry cell batteries. Above the light bulb, and also in the aluminum cylinder, is a compass held in a frame which keeps the compass level. The compass needle has an especially large head and tail. The compass box is translucent and thus the needle shows up very clearly when the light is on. Just above the compass, but in the cylinder, is the leveling device. A small box camera is attached to the brass frame directly above the compass and leveling device. Just above the camera is a mechanism which turns the film through the camera. This mechanism is driven by a dry cell operated electric motor. Above the motor is a clock which makes electrical contacts every five minutes, and sets the mechanism in action to take the photograph and turn the film. The instrument can make 375 exposures before having to be withdrawn from the hole.

This device is placed in a brass case which usually is attached to the bottom of the drill pipe, though it may be run in a bailer. A special section of drill pipe just above the brass case is equipped with spacers to center the instrument in the hole.

Mr. McCoy claims that when the instrument passes any sidetracked pipe or tools, the compass is not affected when the junk is over two feet distant from the compass, and when it is within this distance, the compass fluctuates rapidly and no picture is obtained. He does not believe the compass needle is reliable when used inside of casing, and in that case the survey is made by the orienting method.

Rieber Instrument

The Rieber instrument was designed primarily for use in forestalling crooked holes rather than in surveying them. However, it can be used as well as other compass instruments for making surveys. Drilling can be carried on as long as desired after taking the readings. This device is also used for orienting cores.

The instrument operates on the magnetic compass and plumb bob principles. The records of inclination and direction are made by punch marks on aluminum discs of about the same diameter and thickness as a fifty-cent piece. Forty discs are provided. They are num-

bered consecutively and are piled in a vertical cylindrical container from which they are automatically fed to the marking devices. After the records are made, the discs are automatically fed into another cylindrical receptacle. The power to operate the instrument is furnished by clock works, which are set in motion by rapidly rotating the drill pipe for about fifteen seconds and then stopping it. This motion sets a pot of mercury in the bottom of the instrument in rotation. Four vertical vanes are placed in the mercury and when the rotation of the drill pipe ceases, the mercury continues to rotate, turning the vanes, which starts the clock works. The records are automatically made fifty seconds after stopping the drill pipe. During this time the compass and plumb bob come to rest and a new stand of drill pipe is made up. The movement of a cam permits the plumb bob with a hard needle point to drop and punch the disc. The compass needle is constructed of special highly magnetic cobalt steel. Attached to the needle is a "T"-shaped frame with the top lying above and parallel to the compass needle. It is provided with a sharp point extended upward from one end of the top of the "T" over the north end of the compass. The frame is automatically raised by a cam which causes the point to make a mark in the under side of the disc, indicating magnetic north. At the same time another mark is punched, nearer the edge of the disc, which indicates the zero point of the instrument. This zero point is directly in line with a lug in the core barrel, when used, which automatically marks the cores, thus permitting them to be oriented. The distance of the plumb bob punch from the center of the disc indicates the angle of inclination, and its position with respect to the compass punch mark indicates the direction of inclination. A special instrument is provided to aid in reading the discs. The compass, moving in a plane at right angle to the axis of the instrument, will only function with less than 38 degrees inclination. The plumb bob will record up to 20 degrees inclination with the regular discs. Larger discs will permit the recordings of angles up to 45 degrees.

The instrument is immersed in oil in a brass case equipped with a pressure relief valve. The case fits in a special joint of nonmagnetic chrome nickle steel drill pipe. Circulation is obtained around the instrument. A 7-foot section of this nonmagnetic drill pipe is placed in the drill string both below and above the device. Four-inch drill pipe is the smallest in which one of these instruments can be used, although a smaller instrument will be available later.

It is claimed that the drill pipe, with the nonmagnetic sections, has no influence on the compass. The use of any magnetic compass inside of casing is not recommended, although it is further claimed that one string of casing may not cause any great error. It is also claimed that casing or drill pipe in another hole will not influence the compass unless it is within a distance of 10 feet. Another hole passing near the one surveyed might throw some readings off, but these discrepancies would be clearly indicated.

The instrument is rented, by the month, to operators, who use it themselves and calculate their own results. The owner recommended that the instrument be used for every 200 to 300 feet of hole drilled.

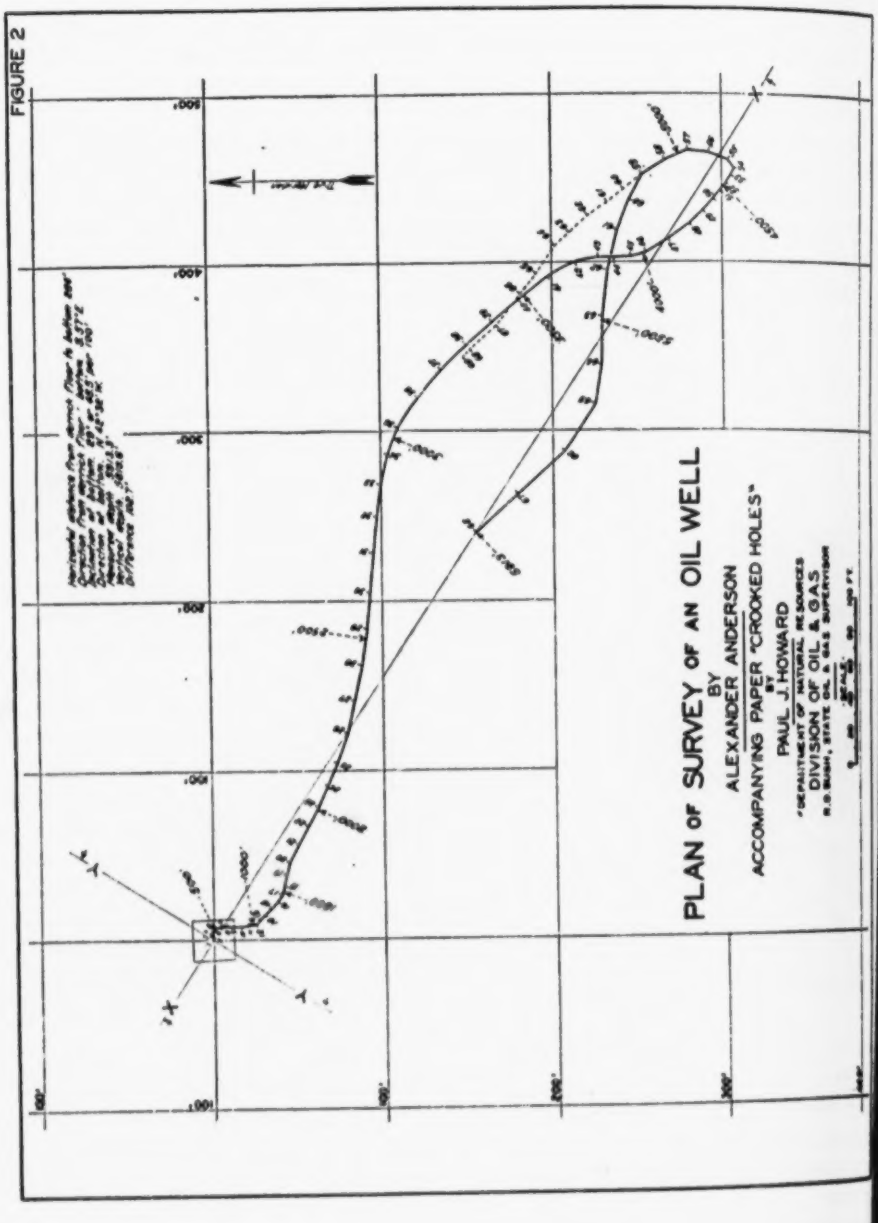

PLAN OF SURVEY OF AN OIL WELL
BY
ALEXANDER ANDERSON
ACCOMPANYING PAPER "CROOKED HOLES"
BY
PAUL J. HOWARD
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS

FIGURE 2

PAUL J. HOWARD
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS
R.D. BUSH, STATE OIL & GAS SUPERVISOR

FIGURE 3.

SURVEY OF AN OIL WELL

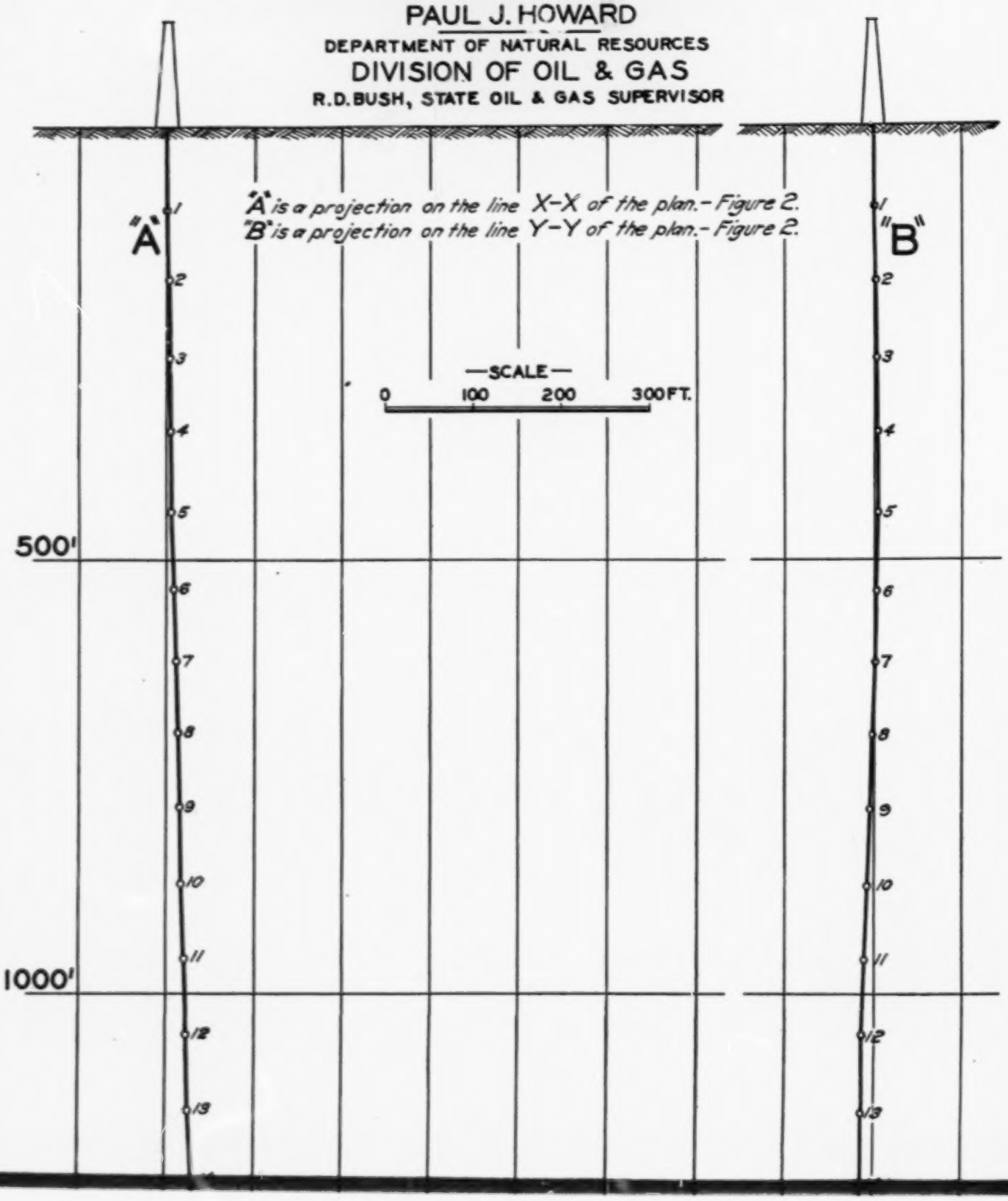
— BY —

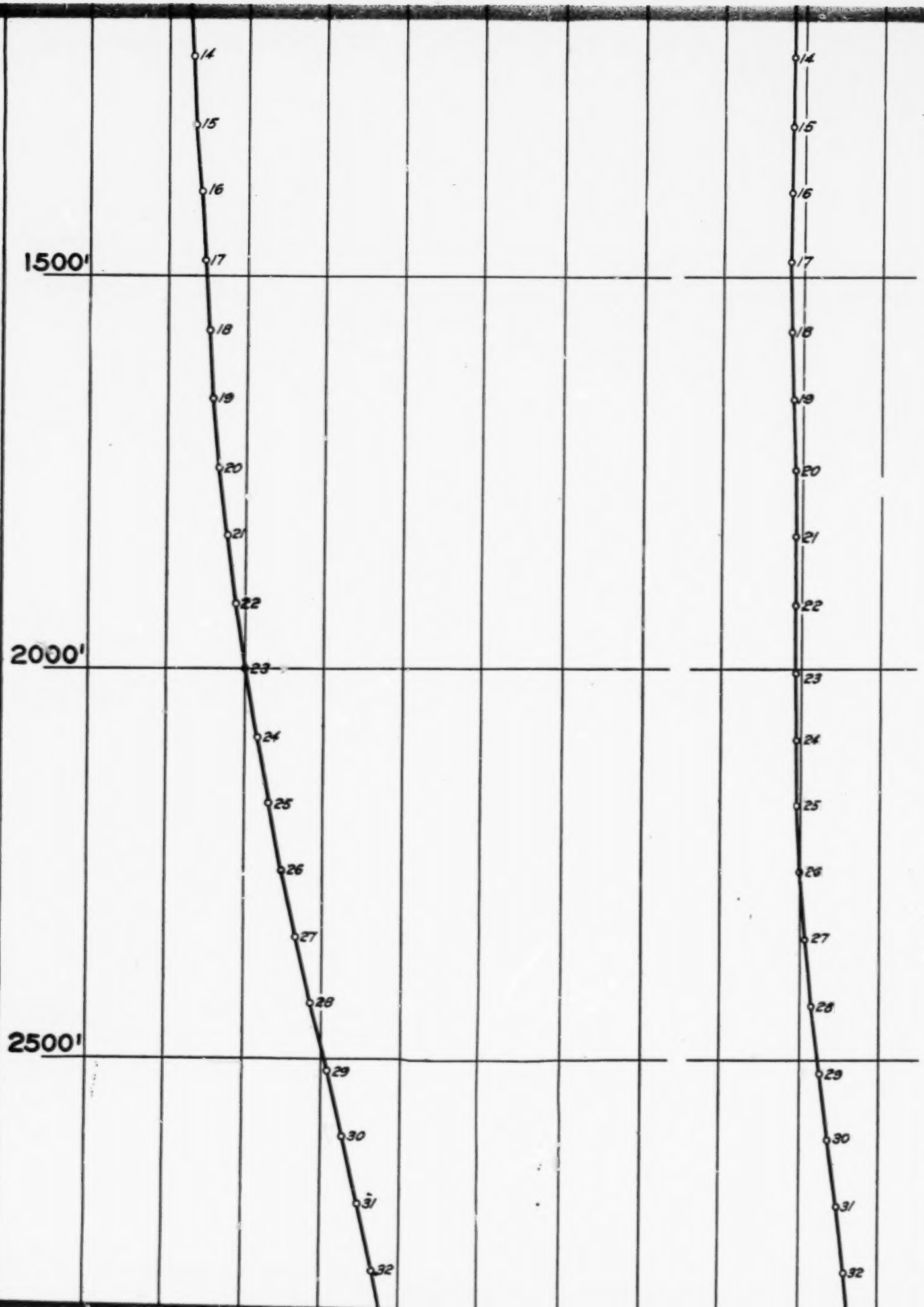
ALEXANDER ANDERSON

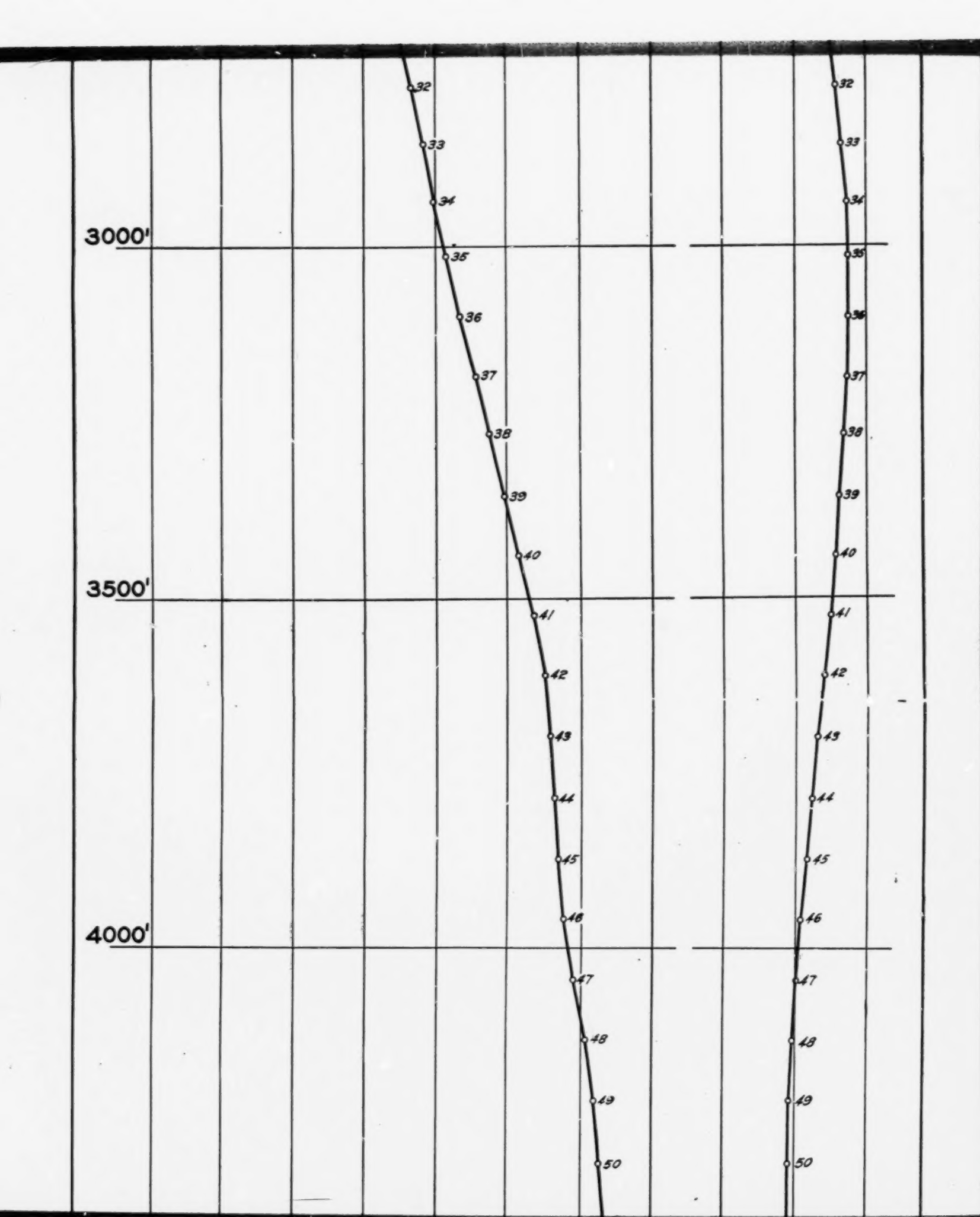
ACCOMPANYING PAPER "CROOKED HOLES"

— BY —

PAUL J. HOWARD
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS
R.D. BUSH, STATE OIL & GAS SUPERVISOR




1500'
2000'
2500'
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32


3000'
3500'
4000'
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50

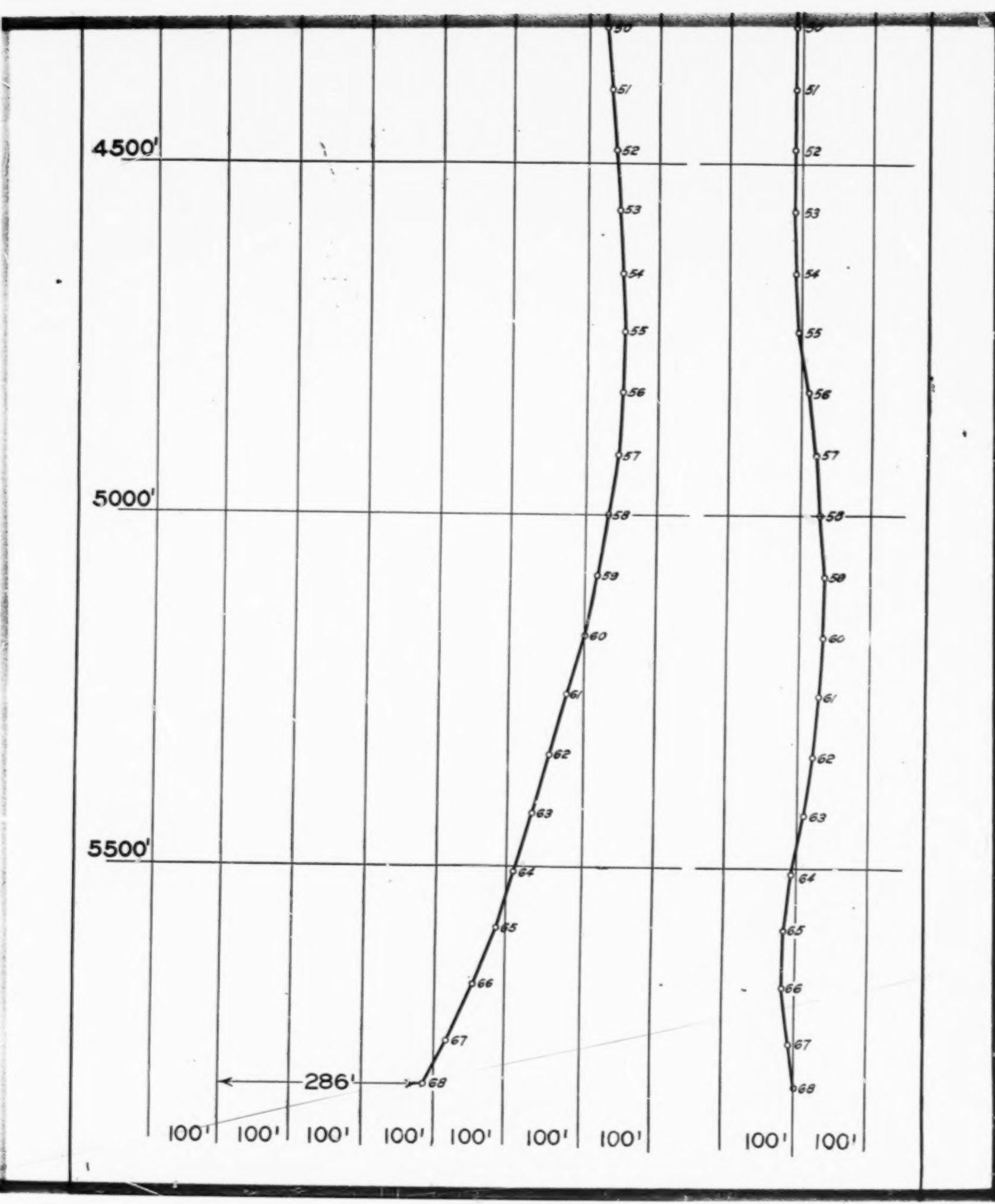

4500'
5000'
5500'
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
286'
100'
100'
100'
100'
100'
100'
100'
100'
100'

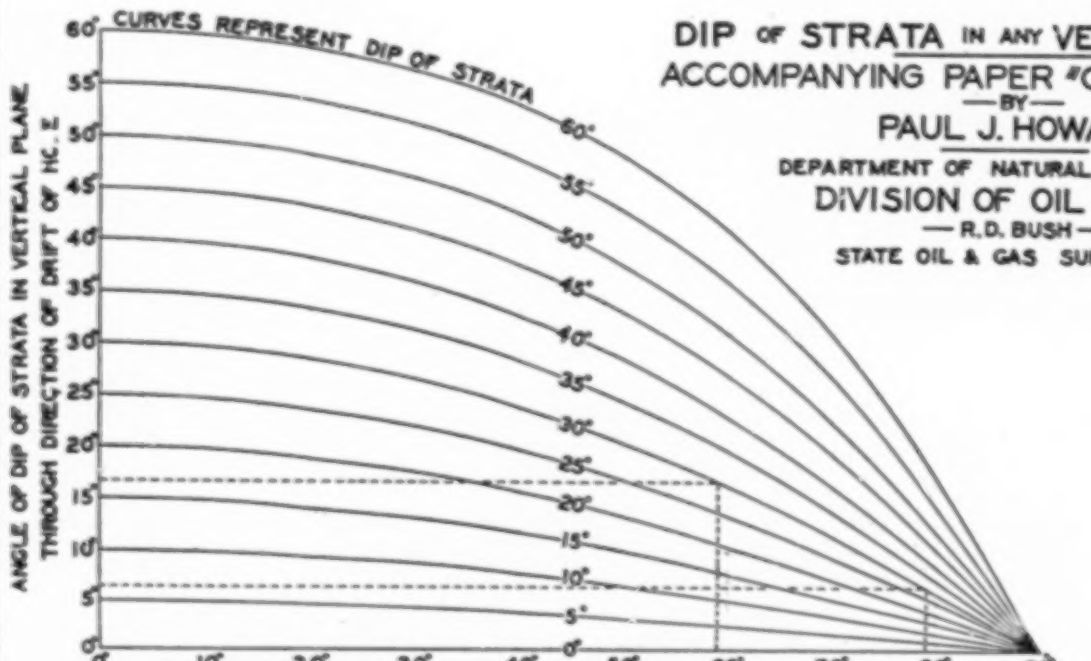
TABLE 3.

SURVEY DATA OF UNDERGROUND COURSE OF ROTARY HOLE

By Alexander Anderson

A	B	C	D	E	F	G	H	
...ding number	Measured depth, feet	Actual vertical depth, feet	Direction of inclination true bearing	Inclination of hole from vertical in degrees	Deviation in feet, per 100	Lengths of stands pipe, feet	Deviation in feet per stand	Total deviation
1	93.08	93.06	.....	0° 20′	0.58	93.08	0.54	
2	178.75	178.75	S. 84° 55′ E.	0° 30′	0.87	85.67	0.75	
3	266.42	266.41	N. 41° 07′ E.	0° 45′	1.31	87.67	1.15	
4	351.25	351.23	N. 71° 46′ E.	0° 45′	1.31	84.83	1.11	
5	443.00	442.94	S. 71° 57′ E.	1° 40′	2.91	91.75	2.67	
6	531.75	531.68	S. 46° 04′ E.	1° 00′	1.75	88.75	1.55	
7	615.50	515.37	S. 12° 03′ E.	2° 15′	3.93	83.75	3.29	
8	700.33	700.12	S. 0° 30′ W.	2° 30′	4.36	84.83	3.70	
9	783.91	783.62	S. 3° 00′ W.	2° 30′	4.36	83.58	3.65	
10	872.83	872.43	S. 0° 44′ E.	2° 50′	4.94	88.92	4.40	23
11	959.83	959.32	S. 7° 11′ E.	2° 50′	4.94	87.00	4.30	
12	1,046.66	1,046.05	S. 9° 04′ E.	2° 45′	4.80	86.83	4.17	
13	1,134.58	1,133.93	S. 45° 53′ E.	1° 50′	3.20	87.92	2.81	
14	1,217.58	1,216.82	S. 50° 36′ E.	3° 00′	5.23	83.00	4.34	
15	1,304.16	1,303.25	S. 40° 57′ E.	3° 20′	5.81	86.58	5.02	
16	1,392.08	1,390.98	S. 48° 56′ E.	3° 45′	6.54	87.92	5.75	
17	1,479.66	1,478.44	S. 53° 18′ E.	3° 00′	5.23	87.58	4.58	
18	1,567.49	1,566.09	S. 75° 10′ E.	3° 40′	6.40	87.83	5.62	
19	1,655.59	1,654.32	S. 77° 44′ E.	4° 30′	7.85	88.50	6.94	
20	1,744.16	1,742.15	S. 75° 57′ E.	5° 00′	8.72	88.17	7.68	74
21	1,832.08	1,829.37	S. 63° 46′ E.	7° 15′	12.62	87.92	11.10	
22	1,919.41	1,915.85	S. 60° 49′ E.	8° 00′	13.92	87.33	12.15	
23	2,007.24	2,002.72	S. 63° 01′ E.	8° 30′	14.78	87.83	12.98	
24	2,095.16	2,089.56	S. 66° 42′ E.	9° 00′	15.64	87.92	13.75	
25	2,179.83	2,172.94	S. 66° 41′ E.	10° 00′	17.37	84.67	14.70	
26	2,268.00	2,259.18	S. 71° 10′ E.	12° 00′	20.79	88.17	18.33	
27	2,356.08	2,345.00	S. 78° 33′ E.	13° 00′	22.50	88.08	19.81	
28	2,444.08	2,430.39	S. 76° 59′ E.	14° 00′	24.19	88.00	21.29	
29	2,531.33	2,514.92	S. 82° 28′ E.	14° 20′	24.76	87.25	21.60	
30	2,619.83	2,600.66	S. 84° 28′ E.	14° 20′	24.76	88.50	21.91	242
31	2,707.66	2,685.36	S. 84° 27′ E.	15° 20′	26.44	87.83	23.22	
32	2,795.66	2,770.75	S. 84° 45′ E.	14° 00′	24.19	88.00	21.29	
33	2,878.83	2,851.79	S. 83° 45′ E.	13° 00′	22.50	83.17	18.71	
34	2,966.83	2,937.87	S. 76° 15′ E.	12° 00′	20.79	88.00	18.30	
35	3,045.00	3,014.33	S. 69° 59′ E.	12° 00′	20.79	78.17	16.25	
36	3,132.92	3,099.76	S. 56° 20′ E.	13° 40′	23.63	87.92	20.77	
37	3,220.92	3,185.15	S. 51° 39′ E.	14° 00′	24.19	88.00	21.29	
38	3,305.84	3,267.43	S. 46° 13′ E.	14° 20′	24.76	84.92	21.02	
39	3,393.84	3,353.06	S. 40° 12′ E.	13° 20′	23.06	88.00	20.29	
40	3,482.34	3,439.05	S. 42° 24′ E.	13° 40′	23.63	88.50	20.91	444
41	3,570.34	3,524.44	S. 38° 24′ E.	14° 00′	24.19	88.00	21.29	
42	3,657.42	3,609.62	S. 27° 04′ E.	12° 00′	20.79	87.08	18.10	
43	3,745.25	3,696.37	S. 12° 31′ E.	9° 00′	15.64	87.83	13.74	
44	3,832.25	3,782.85	S. 2° 33′ W.	6° 15′	10.89	87.00	9.47	
45	3,920.17	3 870.23	S. 2° 25′ E.	6° 20′	11.03	87.92	9.70	
46	4,008.09	3,957.61	S. 14° 42′ E.	6° 20′	11.03	87.92	9.70	
47	4,096.01	4,044.24	S. 33° 03′ E.	9° 50′	17.08	87.92	15.01	
48	4,182.93	4,129.75	S. 36° 27′ E.	10° 20′	17.94	86.92	15.59	
49	4,271.01	4,217.13	S. 43° 18′ E.	7° 15′	12.62	88.08	11.12	
50	4,358.84	4,304.48	S. 48° 34′ E.	6° 00′	10.45	87.83	9.18	577
51	4,446.76	4,392.19	S. 52° 31′ E.	4° 00′	6.98	87.92	6.13	
52	4,534.59	4,479.83	S. 46° 26′ E.	3° 45′	6.54	87.83	5.74	
53	4,621.59	4,566.64	S. 59° 43′ E.	3° 45′	6.54	87.00	5.69	
54	4,708.67	4,653.60	S. 63° 03′ E.	3° 00′	5.23	87.08	4.56	
55	4,793.42	4,738.14	N. 51° 33′ E.	4° 00′	6.98	84.75	5.91	
56	4,881.67	4,825.46	N. 21° 52′ E.	8° 20′	14.49	88.25	12.79	
57	4,969.42	4,912.36	N. 6° 00′ E.	8° 00′	13.92	87.75	12.21	
58	5,057.34	4,999.12	N. 24° 08′ W.	9° 20′	16.22	87.92	14.26	
59	5,145.34	5,085.78	N. 32° 13′ W.	10° 00′	17.37	88.00	15.28	
60	5,233.26	5,172.08	N. 61° 25′ W.	11° 00′	19.08	87.92	16.78	676
61	5,321.09	5,257.83	N. 69° 29′ W.	12° 30′	21.64	87.83	19.01	
62	5,408.76	5,342.10	N. 76° 34′ W.	16° 00′	27.56	87.67	24.17	
63	5,496.76	5,425.79	N. 83° 28′ W.	18° 00′	30.90	88.00	27.19	
64	5,585.01	5,509.23	N. 88° 32′ W.	19° 00′	32.56	88.25	28.73	
65	5,668 59	5,589.37	N. 81° 15′ W.	16° 30′	28.40	83.58	23.74	
66	5,756.59	5,670.82	N. 57° 28′ W.	22° 15′	37.87	88.00	33.32	
67	5,844.59	5,750.58	N. 43° 18′ W.	25° 00′	42.26	88.00	37.19	
68	5,913.26	5,810.64	N. 42° 32′ W.	29° 00′	48.48	68.67	33.29	903

FIGURE 4


DIP OF STRATA IN ANY VERTICAL PLANE
ACCOMPANYING PAPER "CROOKED HOLES"
— BY —
PAUL J. HOWARD
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS
— R.D. BUSH —
STATE OIL & GAS SUPERVISOR
CURVES REPRESENT DIP OF STRATA
ANGLE OF DIP OF STRATA IN VERTICAL PLANE THROUGH DIRECTION OF DRIFT OF HOLE
60° 55° 50° 45° 40° 35° 30° 25° 20° 15° 10° 5° 0°
0° 10° 20° 30° 40° 50° 60° 70° 80° 90°
ANGLE BETWEEN DIRECTION OF DRIFT OF HOLE AND DIRECTION OF DIP OF STRATA
90° 80° 70° 60° 50° 40° 30° 20° 10° 0°
ANGLE BETWEEN DIRECTION OF DRIFT OF HOLE AND STRIKE OF STRATA

Actual Survey of a Well at Long Beach.

Figs. 2 and 3 and Table 3 show the results of a survey made by Alexander Anderson of a well in the south side of the Long Beach field. In the vicinity of this well, the strata dip at an angle of about 30 degrees from the horizontal and the direction of the dip is about south 13 degrees west. The numbers along the curve in the plan view designate the number of stands of drill pipe in the hole when the readings for those particular points were taken. The broken line shows the result of a survey of the hole redrilled from the fifty-ninth stand. The original hole drifted about 550 feet horizontally in a southeasterly direction from its starting point and then turned back until the distance was only 286 feet. The corrected vertical depth was 5811 feet while the drill pipe measured 5913 feet. The hole was redrilled, using a whipstock, from about 5100 feet because of the mechanical condition of the well. The new hole drifted in a northwesterly direction until at the time of the second survey it was 368 feet from the derrick in the direction south 66 degrees east. The corrected vertical depth at this point was 5873 feet while the drill pipe measurement was 5946 feet. At the bottom of the well the hole was going north 46 degrees west with an inclination from vertical of 15 degrees 45 minutes.

Computation Charts.

Computation charts (Figs. 4 and 5) are submitted in the hope that they may increase the usefulness of oil well surveys. The charts provide a means for solving three dimensional problems graphically without a knowledge of descriptive geometry. If the rules herein provided are followed, the problems can be readily solved.

Suppose (1) the dip and direction of dip of the strata are known for a certain section of a field, (2) the correct depth to a certain shale body is known, (3) a survey of a well has been made and the direction and amount of drift have been determined, and (4) the corrected depth has been obtained. The problems will be to determine the vertical distance of the shale body from the bottom of the hole and the distance the hole will have to be drilled, in the direction it takes at the bottom, to encounter the shale body or to determine how much too far it has been drilled.

Detailed explanation of steps taken in solving problems:

1. To determine the dip and direction of dip of the strata: If the dip of the strata is not known, procure a map showing the contours of the top of an oil zone or shale body in the vicinity and locate the position of the well on the map. Using a scale equal to that of the map, measure the shortest distance between two or more contour lines in the vicinity of the well. Divide the difference in elevation of the contour lines by the map distance between them. This gives the tangent of the angle of dip of the strata. Turn to a table giving the natural functions of angles and find the angle whose tangent most nearly equals that obtained by the division. If preferred, a right triangle can be constructed using the map distance as the base and the difference in elevation of the contour lines as the altitude. A protractor may be used to measure the angle opposite the altitude. This is the angle of dip of the strata. The direction of dip is the direction, down dip, at a

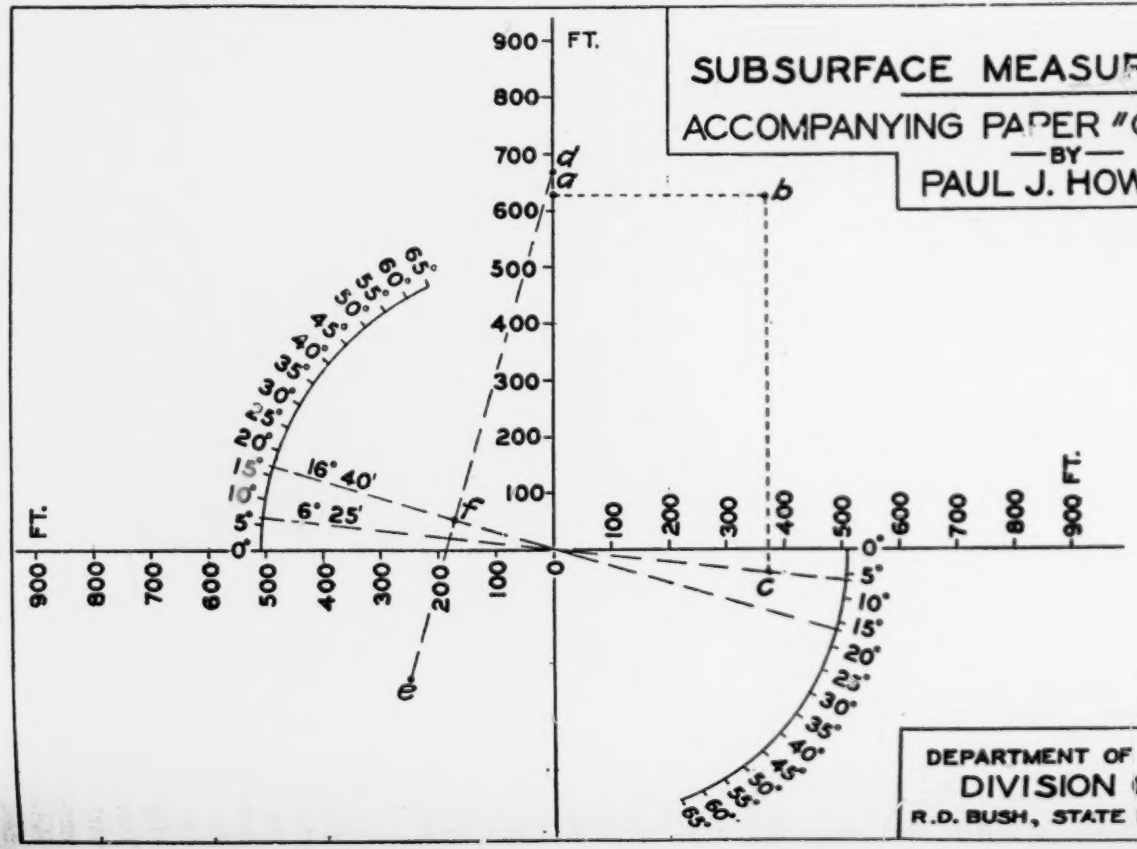
FIGURE 5

SUBSURFACE MEASUREMENT CHART

ACCOMPANYING PAPER "CROOKED HOLES"

—BY—

PAUL J. HOWARD



DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL & GAS

R.D. BUSH, STATE OIL & GAS SUPERVISOR

right angle to the contour lines at the well position. A protractor may be used to give the angle with respect to a north or south line. The direction of the strike of the strata at the chosen point is the bearing of the contour lines with respect to north or south.

2. To determine the correct depth to a particular shale body or oil measure: Maps are usually available showing the contour lines of the tops of various producing horizons. However, this is not always true in the case of deep sands. In any event, by experience and by means of surveys, it may become known that a deep sand exists at a certain distance below the top of a sand which has been contoured. The depth to the last contoured sand is obtained by adding the elevation of the derrick floor above sea level to the proper interpolated contour passing through the well location. To this summation is added the distance between the contours and the top of the deep sand desired, which is the bottom of the overlying shale or shell body.

3. The direction and horizontal distance of the bottom of the hole from its mouth is given in the survey report or it can easily be determined from the data given.

4. The corrected depth is also given in the survey report.

It next becomes necessary to know the vertical angle made by the desired stratum intersecting a vertical plane drawn through the mouth and bottom of the hole. This is necessary in order to plot the desired stratum, the horizontal drift and the corrected depth, all in one plane surface so that the vertical distance from the bottom of the hole to the stratum may be measured directly.

This angle of dip of the strata in the direction of drift of the hole may be obtained by using Fig. 4 if the dip of the strata is known. If desired, it may be obtained in a manner similar to that described for obtaining the dip of the strata at a right angle to the contour lines, except that the scale is laid in the direction of drift of the hole instead of at a right angle to the contour lines.

Use of Figure 4.

Determine the angle between the direction of drift of the hole and the direction of maximum dip of the strata. Using the figures below the chart running from 0 degrees to 90 degrees (left to right), locate the reading corresponding to the angle just determined. Go to a point directly above this on the curve indicating the dip of the strata in the vicinity of the well. Next read the angle on the vertical scale corresponding to this point. This, then, is the angle made by the strata cutting a vertical plane lying in the line of drift of the hole. If desired, the angle between the line of strike of the strata, that is, parallel to the contour lines, and the direction of drift may be used. If this is done, the lower horizontal scale reading from 90 degrees to 0 degrees (left to right) is used.

Use of Figure 5.

Lay off a line at the angle of the shale body as determined from Fig. 4 through the zero point of Fig. 5. Using the zero point as the point directly below the derrick where the shale body or top of the oil measures should be encountered, lay off, in a vertical direction, the differ-

ence between the corrected depth of the hole, taken from the survey, and the expected depth to the oil sands or shale body. Then from this position lay off another point in a horizontal direction, either up dip or down dip as the case may be, at a distance equal to that between the bottom of the hole and a vertical line through the derrick location. The vertical distance from this point to the line representing the reference stratum is then measured. It represents the actual vertical distance from the bottom of the hole to the shale body. Next lay off this latter interval vertically above the zero point. Next must be known the dip of the strata in a vertical plane through the lower section of the hole or in a line representing the probable course of the hole when continued. This angle is obtained by the use of Fig. 4 as before, except that in this case the horizontal angle between the direction of maximum dip of the strata and the probable course of the hole is measured or calculated. Now lay off through the zero point the angle of dip of the strata in the vertical plane through the probable direction of the hole. Next the angle of inclination of the lower portion of the hole, or its estimated continuation, is laid off as an angle about the point, representing the bottom of the surveyed hole, which was moved to the zero line. This angle is laid off to the right or to the left, depending upon whether the hole drifts down or up structure. The length of this line to the shale body, last plotted, is the probable distance which the hole will have to be drilled to reach that shale body, or oil sand, as the case may be.

Similar charts may be constructed using a scale suitable to the nature of the problem.

When using these charts it must be assumed that:

1. The dip of the strata lying above the oil sands is known.
2. The depth to the required stratum below the well location is known.
3. The survey data are correct.
4. The estimated direction and inclination of the proposed extension of the hole will hold true.

The results obtained by the use of these charts will be comparable to the degree of accuracy of the assumptions.

Example of Use of Computation Charts.

The results of the survey shown in this article may be used to illustrate the use of the computation charts.

The redrilled hole was surveyed to a measured depth of 5946 feet. The survey shows the following:

1. Corrected vertical depth 5873 feet.
2. Bottom of hole 368 feet distant, horizontally, from the derrick in the direction south 66 degrees east.
3. The hole at the bottom was going north 46 degrees west at an inclination of 15 degrees 45 minutes from vertical.

Corrected correlation indicates that a 20-foot shale body should be encountered at a depth of 6500 feet directly below the derrick floor. The strata in the vicinity of this well will have a dip of 30 degrees in a direction south 13 degrees west.

Required: To find the distance the well must be drilled to reach the desired shale body.

Solution:

1. Find the dip of the shale body in the vertical plane through the direction of drift (south 66 degrees east) of the hole as shown by the survey.

The horizontal angle between the direction of drift of the hole (south 66 degrees east) and the direction of dip of the strata (south 13 degrees west) is 66 degrees + 13 degrees = 79 degrees. Refer to Fig. 4. Find 79 degrees along the base of the diagram. Go vertically to a point directly above 79 degrees on the curve indicating the dip of the strata (30 degrees in this case). Then move horizontally to the left of the diagram and read the dip of the strata in the direction of drift of the hole. This is 6 degrees 25 minutes. Lay off this angle through the zero point in Fig. 5.

2. Find the dip of the strata in the vertical plane through the lower portion of the hole (that is north 46 degrees west or south 46 degrees east).

The angle between this direction and the direction of the dip of the strata is 46 degrees + 13 degrees = 59 degrees. Then using 59 degrees and referring to Fig. 4 as before, the dip of the strata in the direction the hole is going at the bottom is found to be 16 degrees 40 minutes. Lay this angle off through the zero point in Fig. 5.

Next obtain the difference between the corrected depth of the bottom of the hole at the time of survey (5873 feet) and the vertical depth to the shale body from the derrick floor (6500 feet). This value is 627 feet. Lay this distance off (Oa) in Fig. 5 directly above the zero point. Next lay off horizontally from this point the horizontal drift of the hole (368 feet) (a-b). This is laid off to the right because the hole drifted down structure. The distance (b-c) is the vertical distance from the bottom of the hole to the shale body (667 feet).

As usually the hole will not be vertical at the bottom, the distance it will have to be drilled must next be obtained. Lay off the distance O-d equal to c-b. Then lay off the angle e-d-O equal to the inclination of the hole at the bottom (15 degrees 45 minutes). This angle may be laid off in deviation in feet per 100 feet if desired. This angle is laid off to the left because the hole is going up structure at the bottom. The distance d-f is the additional distance the hole will have to be drilled to reach the shale body (636 feet).

This distance added to the measured depth of the surveyed hole equals 6582 feet and represents the measured depth of the hole where the shale body should be encountered.

Conclusion.

It is hoped that this article may serve a useful purpose by presenting information on straight hole drilling practice, in describing various possible complications associated with crooked holes, and in submitting charts which may be helpful in solving crooked hole problems.

This paper indicates the need for correlation of deep lying oil measures, which can only be accomplished by the compilation of data, based on reliable surveys, furnished by numerous operators.

At the present time, most operators are reluctant to release information in regard to the underground positions of their wells, thus making it almost impossible to obtain accurate correlation data, but for their own protection and for the protection of oil and gas sands from damage by water through improper drilling based on erroneous data, this information should be made available in some form.

RUNS TO STILLS AND OUTPUT OF OIL REFINERIES IN THE UNITED STATES APRIL, 1929

(Statistics by U. S. Bureau of Mines)

Input	Crude oil		Unfinished oils, rerun	Natural gasoline	Total input (bbls.)
	Domestic	Foreign			
East Coast	8,354,000	5,424,000	1,269,000	288,000	15,335,000
Appalachian	2,918,000	----------	124,000	35,000	3,077,000
Indiana, Illinois, Kentucky, etc.	8,733,000	----------	586,000	163,000	9,482,000
Oklahoma, Kansas, Missouri	9,539,000	----------	362,000	290,000	10,191,000
Texas	17,033,000	403,000	870,000	776,000	19,082,000
Louisiana and Arkansas	5,702,000	833,000	104,000	565,000	7,204,000
Rocky Mountain	2,181,000	----------	679,000	127,000	2,987,000
California	19,339,000	----------	[1]559,000	[2]1,358,000	21,256,000
United States totals	73,799,000	6,660,000	4,553,000	3,602,000	88,614,000
Daily average, April, 1929	2,460,000	222,000	151,800	120,000	2,953,800
Daily average, March, 1929	2,390,100	213,300	105,900	120,600	3,829,900
Texas Gulf Coast	12,009,000	403,000	500,000	640,000	13,552,000
Louisiana Gulf Coast	3,557,000	833,000	91,000	460,000	4,941,000

OUTPUT AND LOSSES

	Gasoline (bbls.)	Kerosene (bbls.)	Gas and fuel oils (bbls.)	Lubricants (bbls.)	Wax (lbs.)
East Coast	4,505,000	743,000	7,534,000	907,000	24,735,000
Appalachian	1,346,000	297,000	676,000	435,000	9,161,000
Indiana, Illinois, Kentucky, etc.	5,090,000	441,000	2,865,000	336,000	5,987,000
Oklahoma, Kansas, Missouri	4,981,000	910,000	3,206,000	233,000	3,629,000
Texas	7,458,000	785,000	8,094,000	666,000	6,109,000
Louisiana and Arkansas	2,508,000	430,000	3,091,000	101,000	4,231,000
Rocky Mountain	1,436,000	110,000	580,000	52,000	4,124,000
California	7,312,000	718,000	11,487,000	169,000	----------
United States totals	34,636,000	4,434,000	37,533,000	2,899,000	57,976,000
Daily average, April, 1929	1,154,500	147,800	1,251,100	96,600	1,932,500
Daily average, March, 1929	1,111,800	145,600	1,208,300	94,900	1,818,500
Texas Gulf Coast	5,607,000	535,000	5,045,000	630,000	6,002,000
Louisiana Gulf Coast	1,893,000	376,000	1,811,000	84,000	4,231,000

OUTPUT AND LOSSES—Continued

	Coke (tons)	Asphalt (tons)	Other finished products (bbls.)	Unfinished products (bbls.)	Losses (bbls.)
East Coast	13,100	137,100	114,000	32,000	590,000
Appalachian	3,200	1,100	34,000	68,000	166,000
Indiana, Illinois, Kentucky, etc.	31,200	37,400	177,000	67,000	121,000
Oklahoma, Kansas, Missouri	28,900	1,400	51,000	212,000	414,000
Texas	33,500	22,300	8,000	860,000	907,000
Louisiana and Arkansas	11,200	38,000	179,000	442,000	179,000
Rocky Mountain	9,400	1,000	8,000	674,000	46,000
California	200	44,300	192,000	[3]642,000	487,000
United States totals	130,700	282,600	763,000	2,997,000	2,910,000
Daily average April, 1929	4,360	9,420	25,400	99,900	97,000
Daily average, March, 1929	4,170	7,340	23,800	92,700	83,900
Texas Gulf Coast	27,700	22,200	2,000	715,000	746,000
Louisiana Gulf Coast	11,200	32,400	176,000	293,000	62,000

NOTE—Wax, coke and asphalt equivalent to 278.7 pounds per barrel and 5.15 and 5.52 barrels per ton, respectively.

[1] Includes 173,000 barrels net tops produced.

[2] Includes 150,000 barrels run through pipe lines.

STOCKS HELD BY OIL REFINING COMPANIES IN THE UNITED STATES APRIL 30, 1929

(Statistics by U. S. Bureau of Mines)

	Gasoline (bbls.)	Kerosene (bbls.)	Gas and fuel oils (bbls.)	Lubricants (bbls.)
East Coast	7,525,000	1,148,000	5,731,000	2,820,000
Appalachian	1,850,000	262,000	1,029,000	1,018,000
Indiana, Illinois, Kentucky, etc.	7,862,000	628,000	2,386,000	651,000
Oklahoma, Kansas, Missouri	5,622,000	658,000	5,316,000	468,000
Texas	6,933,000	1,317,000	11,685,000	2,187,000
Louisiana and Arkansas	2,575,000	554,000	6,171,000	130,000
Rocky Mountain	2,625,000	200,000	1,086,000	153,000
California	12,023,000	2,730,000	----------	905,000
United States totals	[1]67,015,000	7,497,000	[1]35,404,000	8,341,000
U. S. totals, March 31, 1929	[2]43,205,000	7,855,000	[2]30,195,000	8,853,000
Texas Gulf Coast	5,915,000	1,204,000	8,556,000	2,124,000
Louisiana Gulf Coast	2,318,000	526,000	4,880,000	124,000

STOCKS HELD BY OIL REFINING COMPANIES—Continued

	Wax (lbs.)	Coke (tons)	Asphalt (tons)	Other finished products (bbls.)	Unfinished oils (bbls.)
East Coast	79,915,000	21,800	111,400	69,000	8,471,000
Appalachian	20,060,000	3,200	1,400	64,000	1,405,000
Indiana, Illinois, Kentucky, etc.	14,890,000	39,000	38,000	221,000	3,991,000
Oklahoma, Kansas, Missouri	8,460,000	85,000	2,700	54,000	2,154,000
Texas	8,901,000	158,400	7,000	15,000	10,964,000
Louisiana and Arkansas	16,194,000	55,700	31,700	56,000	2,486,000
Rocky Mountain	22,267,000	81,500	7,400	32,000	1,858,000
California	----------	300	49,200	224,000	[3]8,516,000
United States totals	170,687,000	444,900	248,800	735,000	39,645,000
U. S. totals, March 31, 1929	158,404,000	402,400	250,100	691,000	38,471,000
Texas Gulf Coast	8,637,000	146,800	6,900	8,000	9,704,000
Louisiana Gulf Coast	16,194,000	55,500	27,300	54,000	1,960,000

[1] East of California.
[2] Revised by addition of 1,000,000 barrels to east coast.
[3] Includes 1,695,000 barrels tops in storage.

GASOLINE

Amount of Gasoline Produced Each Month and Stocks on Hand at End of Each Month in California and the United States

(Statistics by U. S. Bureau of Mines)

	California		United States	
	Output, (barrels)	Stocks, (barrels)	Output, (barrels)	Stocks, (barrels)
1928—				
January	5,193,000	13,015,000	27,962,000	37,380,000
February	4,821,000	13,205,000	26,762,000	39,860,000
March	5,209,000	13,602,000	29,311,000	41,089,000
April	4,977,000	13,562,000	29,300,000	41,195,000
May	5,257,000	12,868,000	30,837,000	38,230,000
June	5,659,000	12,615,000	30,793,000	34,862,000
July	5,775,000	11,219,000	32,959,000	30,394,000
August	5,778,000	9,794,000	33,937,000	27,075,000
September	5,549,000	9,339,000	33,670,000	26,378,000
October	5,967,000	8,708,000	34,415,000	26,435,000
November	5,770,000	8,931,000	33,065,000	29,185,000
December	6,721,000	8,921,000	33,934,000	33,066,000
1929—				
January	6,998,000	10,134,000	34,335,000	40,648,000
February	5,975,000	10,186,000	31,264,000	45,704,000
March	7,416,000	11,293,000	34,467,000	*48,205,000
April	7,312,000	12,023,000	34,636,000	47,015,000
May				
June				
July				
August				
September				
October				
November				
December				

* Revised figure.

REPORTS ISSUED BY STATE OIL AND GAS SUPERVISOR DURING MONTH OF JUNE, 1929

The accompanying table shows the number and kind of reports issued by the State Oil and Gas Supervisor to oil operators in each field of the State of California during the month for which operations are herein summarized. Briefs of the Supervisor's findings and recommendations, as set forth in each report, are summarized under oil districts and fields in the pages which follow.

Reports by the Supervisor are of two kinds, namely, those passing upon proposed operations and those passing upon work which has been inspected or tests which have been witnessed by a representative of the Supervisor during progress of the work or after completion.

Reports in reply to notices filed by the operator covering drilling, deepening, redrilling or abandonment operations, and bearing the operator's proposed method of carrying out the work, are called P reports. Each P report has a serial number. For example, the abbreviation "P 1-6183" means report No. 6183 on a proposed operation in District No. 1. Reports giving the results of tests and inspections are called T reports, and are numbered in a similar manner.

The state is divided into five districts, as follows:

District No. 1, including the counties of Los Angeles, Riverside, Orange, San Diego, Imperial and San Bernardino.

District No. 2, the county of Ventura.

District No. 3, including the counties of Santa Barbara, San Luis Obispo, Monterey, Santa Cruz, San Benito, Santa Clara, Contra Costa, San Mateo, Alameda and San Francisco.

District No. 4, including the counties of Tulare, Inyo and Kern.

District No. 5, including the counties of Fresno, Madera, Kings, Mono, Mariposa, Merced and all other counties in California not included in any of said other districts.

Field offices are maintained in District No. 1 at Los Angeles, with branch field offices at Huntington Beach and Long Beach.

In Districts No. 2, No. 3 and No. 5, the field offices are at Santa Paula, Santa Maria and Coalinga, respectively.

In District No. 4 the main field office is at Taft, with a branch field office at Bakersfield.

MONTH OF JUNE, 1929

Field or county[1]	Tests		Proposals					
			New wells				Abandon	
	Routine	Inspection	Drill	Supplementary	Deepen	Redrill	First	Supplementary
Dist. 1—Brea-Olinda	1	1		1				
Coyote Hills		1		1	2			
Domingues	2	2						
Huntington Beach	1	2	2	2		3	3	
Inglewood			1					
Lawndale	5	1		4	1		13	
Long Beach	37	39	8	10	5	9	1	
Newhall			1					
Newport							1	1
Potrero	2	1						
Richfield	1	2	3	1			3	
Rosecrans	4	3			1	1	1	
Santa Fe Springs	76	44	16	41	15	6	1	
Seal Beach	9	7	4	2	3	1		
Torrance						1	1	
Los Angeles County			3	1			2	
Orange County			1					
San Bernardino County			1				1	
San Diego County			1					
Totals	138	103	41	63	27	21	27	1
Dist. 2—Ojai	1			1				
Rincon	1	1		1				
Santa Paula	2	1						
Sespe	1							
Simi			1					
South Mountain	1						1	
Ventura	17	12	6	2		2		
Totals	23	14	7	4		2	1	
Dist. 3—Elwood		1	1	1			1	
Lompoc						1		
Summerland			1			1		
Santa Barbara County			30	1			3	
Totals		1	32	2		2	4	
Dist. 4—Belridge	2	1	2	1				
Buttonwillow Gas			2				1	
Elk Hills		2	1		1	4	1	
Fruitvale	4	1	1	1		2		
Kern River	3	2	4	1				
McKittrick		3						
Midway	6	8	5	6	2	5	2	
Mt. Poso	4		1	1			2	
Round Mountain			1	1				
Sunset	8	6	1	6	1	2		3
Kern County			1	1				
Totals	27	23	19	18	4	13	6	3
Dist. 5—Coalinga	1	1	1			2		
Kettleman Hills	4	4	5	2				
Colusa County			1					
Fresno County			4	1				
Kings County			1					
Mendocino County			1					
Totals	5	5	13	3		2		
Grand totals	193	146	112	90	31	40	38	4

District No. 1

BREA-OLINDA FIELD

T. 3 S., R. 10 W., S. B. B. and M.

Sec. 1—Brea Canon Oil Co. well No. 45. (Report No. P 1-19915.) Supplementary proposal to drill approved provisionally. Conditions: Depth 6115'; 15½" cemented at 2000'; 10" cemented at 4088', perforated 4088'-4400'; 6½" landed at 5501', perforated 4400'-5501', cemented through perforations at 4400'; shot 5515'-20'; plugged with cement 5600'-5290'; tests indicate formations 4400'-5290' contain edgewater and no oil. Proposed to plug solid with cement 5290'-4405' and have division witness for hardness; cut and pull 6½" at 4100'; place cement plug 4100'-4088'; cut and pull 10" at 1950'; produce well 3400'-4088'. Decision: Proposal is approved provided that: (1) Cement plug 5290'-4400' is placed under at least 500 lb. pressure. (2) Division is notified to witness location and hardness of cement plug at 4400'.

Brea Canon Oil Co. well No. 45. (Report No. T 1-17846.) Inspection of cementing operations. Cleaned out to 5290'; plugged with 160 sacks cement in 20' stages 5290'-4350' without pressure; water was run in hole during operations to put pressure on cement plug. Inspector noted bailer could not be spudded below 4345' and brought up sample of set cement. Location and hardness of cement plug at 4345' are approved. Note: Attention is directed to fact that cement plug should have been placed under at least 500 lb. pressure as required in Report No. P 1-19915.

Sec. 2—Brea Canon Oil Co. well No. 46. (Report No. T 1-17889.) Bailing test approved. 15½" casing cemented at 1201'. Hole bailed to 695' for test and stood 12 hr. No fluid entered well.

COYOTE HILLS FIELD

T. 3 S., R. 11 W., S. B. B. and M.

Sec. 13—Standard Oil Co. well No. "Emery" 10. (Report No. P 1-19998.) Proposal to redrill oil string and deepen approved. Conditions: Depth 3512'; redrilled to 3338'; 10¾" landed at 3015'; 8⅝" cemented at 3132'; 6⅝" cemented at 3180', put together with die collar at about 1180'; 4½" landed at 3310', perforated 2957'-3310'. Proposed to clean out to 3338' and plug with cement 3338' to vibration point on 4½"; recover 4½" from below 6⅝" shoe at 3180'; redrill to 3513' and deepen to about 3780'; recomplete with 4½" oil string.

Standard Oil Co. well No. "Emery" 43-A. (Report No. P 1-19954.) Proposal to drill approved. Conditions: Well is 269.8' N. of S. line of section, and 754.8' W. of E. line of section. Proposed to cement 24" at 95'; cement 16" at 3200'-50'; notify division to witness test of water shut-off on 16", also prior to landing or cementing any further casing; maintain mud fluid to surface at all times during drilling operations; fill any side-tracked hole with cement.

Sec. 24—Standard Oil Co. well No. "Emery" 24. (Report No. P 1-19999.) Proposal to redrill oil string and deepen approved. Conditions: Depth 3800'; redrilled to 3459'; 10¾" cemented at 2985'; 8⅝" cemented at 3169'; 6⅝" cemented at 3240'; 4½" landed at 3438', including 316' perforated. Proposed to clean out to 3438' and plug with cement from 3438' to vibration point on 4½" casing; recover 4½" from below 6⅝" shoe at 3240'; redrill to 3800' and deepen to about 4100'; recomplete with 4½" oil string.

Standard Oil Co. well No. "Emery" 44. (Report No. P 1-19940.) Supplementary proposal to drill approved. Conditions: Depth 4100'; 18" cemented at 400'; 11¾" cemented at 3262'; water witch shows water enters at 3445' in well No. "Emery" 45. Proposed to land 9" at 4100', perforate 3525'-4100' and cement through perforations at 3525'.

DOMINGUEZ FIELD

T. 3 S., R. 13 W., S. B. B. and M.

Sec. 34—Shell Oil Co. well No. "Reyes" 39. (Report No. T 1-17792.) Inspection of mudding operations. During ½ hr. circulation test mud fluid was lost from pit at rate of 4 bbl. per hr. Mudding operations are approved. Oral approval given to cement 13⅜" at 3720' is hereby confirmed.

Shell Oil Co. well No. "Reyes" 39. (Report No. T 1-17748.) Bailing test approved. 13⅜" casing cemented at 3718'. Hole swabbed to 1500' for test and stood 19 hr. Fluid level rose at rate of 11.4 bbl. in 24 hr. Fluid samples were: top, heavy gas-cut mud; 3725', heavy gas-cut mud with no evidence of free water.

Shell Oil Co. well No. "Reyes" 39. (Report No. T 1-17791.) Inspection of mudding operations. During ½ hr. circulation test mud fluid was lost from pit at rate of 1 bbl. per hr. Mudding operations are approved. Oral approval given to cement 10¾" at 4156' is hereby confirmed.

Shell Oil Co. well No. "Reyes" 39. (Report No. T 1-17911.) Bailing test approved. 10¾" casing cemented at 4151'. Hole swabbed to 1800' for

FOLD-OUT IS TOO LARGE TO BE FILMED

SUPREME COURT OF THE UNITED STATES.

No. 43.—October Term, 1931.

Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Oil Company, et al.,
vs.
The Superior Court of the State of California in and for the County of Los Angeles and Honorable William Hazlett, as one of the Judges thereof.

Appeal from the District Court of Appeal of the State of California, Second Appellate District.

[November 23, 1931.]

Mr. Chief Justice Hughes delivered the opinion of the Court.

The appellants are producers of oil and gas from their respective wells in the Santa Fe Springs oil field in Los Angeles County, California. In September, 1929, the State, acting through its Director of Natural Resources, brought suit in the Superior Court of the State against the appellants and others, seeking to enjoin an alleged unreasonable waste of natural gas in that field. The authority for the suit was found in Sections 8b and 14b of what is called the Oil and Gas Conservation Act of California. Stats. Cal. 1915, ch. 718; 1917, ch. 759; 1919, ch. 536; 1921, ch. 912; 1929, ch. 535. Section 8b prohibits "the unreasonable waste of natural gas", and Section 14b authorizes suit by the Director of Natural Resources to enforce the prohibition.[1]

[1]These sections are as follows:

"Sec. 8b. The unreasonable waste of natural gas by the act, omission, sufferance or insistence of the lessor, lessee or operator of any land containing oil or gas, or both, whether before or after the removal of gasoline from such natural gas, is hereby declared to be opposed to the public interest and is hereby prohibited and declared to be unlawful. The blowing, release or escape of natural gas into the air shall be prima facie evidence of unreasonable waste." (Stats. Cal. 1929, ch. 535, p. 927.)

"Sec. 14b. Whenever it appears to the director of the department of natural resources that the owners, lessors, lessees, or operators of any well or wells producing oil and gas or oil or gas are causing or permitting an unreasonable waste of gas, he may institute, or have proceedings instituted, in the name of the people of the State of California, to enjoin such unreasonable waste of gas regardless of whether proceedings have or have not

The Superior Court granted a preliminary injunction after a hearing upon the pleadings, affidavits, oral testimony and documents submitted. The court recited in its order that there appeared to be an unreasonable waste of natural gas in the Santa Fe Springs oil field, and that an injunction was necessary in order "to preserve the subject matter of the action to abide the decree of the court at the conclusion of the trial." The court restricted the average daily production of "net formation gas" from "any lease or other property unit" to the amount shown for each operator in an accompanying schedule.[2] The court also directed each defen-

---

been instituted under section 8 hereof, and regardless of whether an order has or has not been made therein. Such proceedings shall be instituted in the superior court for the county in which the well or wells from which the unreasonable waste of gas is occurring or any thereof are situated. The owners, lessors, lessees or operators causing or permitting an unreasonable waste of gas in the same oil or gas field, although their properties and interests may be separately owned and their unreasonable waste separate and distinct, may be made parties to said action. In such suits no restraining order shall be issued *ex parte*, but otherwise the procedure shall be governed by the provisions of chapter three, title seven, part two of the Code of Civil Procedure of the State of California and no temporary or permanent injunction issued in such proceedings shall be refused or dissolved or stayed pending appeal upon the giving of any bond or undertaking, or otherwise." (Stats. Cal. 1929, ch. 535, p. 930.)

[2]The injunction order sets forth "that the evidence available to the Court at this time shows that the unreasonable waste of natural gas in said field may be substantially reduced and that the equities of all parties may be fairly conserved by a preliminary injunction which will limit the waste of gas by restricting the production thereof to a quantity reasonably in excess of the present outlets for beneficial use above ground, require the extraction of gasoline from the gas produced in the field; that accordingly for the purposes of this order, the total gas outlets for all uses with a reasonable tolerance to take care of fluctuating demands and the necessary waste is taken at approximately two hundred eighty-five million (285,000,000) cubic feet of gas each day, and the estimated potential production of oil is taken at two hundred thirty-seven thousand five hundred seventy-six (237,576) barrels each day distributed among leases and other operating property units, as shown in the schedule hereafter set out; and that sufficient cause has been shown for the extraordinary relief of a preliminary injunction pending the trial of the action on the merits, and the entry of a final judgment herein;

"It Is Ordered and Decreed that the above named defendants . . . be and they hereby are restrained and enjoined . . . until the further order of this court as follows:

dant to file reports showing the daily production of gas and oil, and the order was without prejudice to the right of any of the parties to move on five days' notice for modification of the injunction. The court later modified the order in particulars not important here. Appellants state that the order curtailed their production of gas from 57,120,000 to 27,187,000 cubic feet a day.

Thereupon the appellants sought a writ of prohibition from the District Court of Appeal, Second Appellate District of the State, restraining the Superior Court and the respondent, William Hazlett, as one of its judges, from enforcing the injunction order. The jurisdiction of the Superior Court was attacked upon the ground of the invalidity of the statute invoked. The appellants contended, in substance, that the statute violated the due process clause of the Fourteenth Amendment in that it afforded no certain or definite standard as to what constituted "waste" or "unreasonable waste" and unlawfully delegated power to the Superior Court to legislate upon that subject; in that, upon the facts and as applied against the appellants, the statute prohibited them "from utilizing such amount of natural gas produced from their respective wells" as was "reasonably necessary to produce oil therefrom in quantities not exceeding a reasonable proportion to the amount of oil produced from the same well"; and in that the statute required appellants to curtail their production of oil and gas "for the purpose of conserving such natural gas for the benefit of the general public" without eminent domain proceedings and without just compensation, and was so arbitrary and oppressive that it

---

"1. From blowing, releasing or permitting any natural gas to escape into the air from any well or wells in the Santa Fe Springs Oil Field before the removal of the gasoline from such natural gas.

"2. From operating any well producing natural gas in the Santa Fe Springs Oil Field except while exercising a high degree of care in the selection and adjustment of appliances and in the use thereof for the purpose of keeping each producing well in its 'optimum gas-oil ratio'—the term 'optimum gas-oil ratio' being defined as the smallest number of cubic feet of gas which can be produced with each barrel of oil from the same well at the same time.

"3. From producing more net formation gas on the average day of each seven (7) day period from any lease or other property unit than is set forth in the 'Allowed Gas Production' column" than that shown for each operator in the accompanying schedule.

was in excess of the power of the State. By reference to their pleadings in the injunction suit, the appellants also assailed, under the due process clause, the provision of the statute as to what should constitute *prima facie* evidence of unreasonable waste, and the appellants further insisted that the statute as enforced against them impaired the obligation of their lease contracts in violation of the contract clause of the Federal Constitution and that they were denied the equal protection of the laws as guaranteed by the Fourteenth Amendment.

The respondents (appellees here) demurred to the petition, and the District Court of Appeal, entertaining and overruling the contentions of the appellants under the due process clause, denied the writ of prohibition. 63 Cal. App. Dec. 1175, 293 Pac. 899. The appellants then applied for a hearing in the Supreme Court of the State and, this having been denied, they seek in this Court a review of the judgment of the District Court of Appeal.

This Court has jurisdiction. The proceeding for a writ of prohibition is a distinct suit and the judgment finally disposing of it is a final judgment within the meaning of section 237 (a) of the Judicial Code. U. S. C., Tit. 28, sec. 344. *Weston* v. *Charleston*, 2 Pet. 449, 464; *Mt. Vernon Cotton Company* v. *Alabama Power Company*, 240 U. S. 30, 31; *State of Missouri ex rel. St. Louis B. & M. Rwy. Co.* v. *Taylor*, 266 U. S. 200, 206; *Michigan Central R. R. Co.* v. *Mix*, 278 U. S. 492, 494. That judgment, however, merely dealt with the jurisdiction of the Superior Court of the suit for injunction, and the only question before us is whether the District Court of Appeal erred in deciding the Federal questions as to the validity of the statute upon which that jurisdiction was based. Moreover, with all questions of fact, or with questions of law which would appropriately be raised upon the facts adduced in the trial of the case in the Superior Court, as a court competent to entertain the suit, we are not concerned on this appeal. The appellants annexed to their petition in the prohibition proceeding, and made a part of it, the pleadings in the injunction suit and the affidavits presented upon the hearing of the application for preliminary injunction. But they could not in that manner, or by their characterization of the evidence thus adduced, or by pleading the conclusions derived therefrom, substitute the District Court of Ap-

peal for the Superior Court in the determination of the facts, or of the law as addressed to the facts, which should properly be considered by the latter tribunal. It appears that in California, in accordance with the general conception of the province of the writ, prohibition is for the purpose of arresting the proceedings of any tribunal exercising judicial functions when such proceedings are without, or in excess of, jurisdiction. Cal. Code of Civ. Pro., secs. 1102, 1103; *Jacobsen* v. *Superior Court,* 192 Cal. 319; 219 Pac. 986. See, also, *Baar* v. *Smith,* 201 Cal. 87, 101; 255 Pac. 827, 833. The writ of prohibition is not available as a substitute for an appeal from a court having jurisdiction. As was said by the Supreme Court of California, in *Truck Owners & Shippers, Inc.,* v. *Superior Court,* 194 Cal. 146, 155; 228 Pac. 19, 22, 23: "If the superior court has jurisdiction to entertain the action it has the power to define the right sought to be protected. . . . If the judgment of the superior court be incorrect, it may be reversed on appeal but not on prohibition."

After the decision of the District Court of Appeal, and before the denial by the Supreme Court of the State of a hearing in the instant case, the latter court passed upon the constitutional validity of the statute in question. That decision was made upon an application for a writ of *supersedeas* pending an appeal by certain co-defendants of the appellants here (who were not parties to the appeal) from the above mentioned injunction order. *People ex rel. Stevenot, Director of Natural Resources* v. *Associated Oil Company, et al.,* 80 Cal. Dec. 607; 294 Pac. 717. The Supreme Court found no reason to interfere with the action of the Superior Court, and, later, the Supreme Court, on that appeal, affirmed the injunction order holding that under the statute the Superior Court had the power to determine what wastage of gas in the production of oil was unreasonable. *id.* 81 Cal. Dec. 468, 471; 297 Pac. 536, 537. The District Court of Appeal, in the instant case, had expressed the same opinion and accordingly decided that it could not interefere by writ of prohibition. 63 Cal. App. Dec. at p. 1186; 293 Pac. at p. 907.

It follows that, in considering and deciding Federal questions in the prohibition proceeding, the District Court of Appeal must be regarded, as its opinion imports, as having determined merely

that the statute was valid upon its face so that the Superior Court had jurisdiction to entertain the injunction suit. It is that determination alone that we can now consider.

The District Court of Appeal overruled the contention that the statute was so uncertain and devoid of any definition of a standard of conduct as to be inconsistent with due process. The Supreme Court of the State, reaching the same conclusion (in the opinion above cited, 80 Cal. Dec. at pp. 614, 615; 294 Pac. at p. 724) described the general condition in which oil and gas were found in California and the standard which the court considered to be established by the statute. After observing that courts were entitled to take judicial notice of the condition and development of the petroleum industry, and of matters of science and common knowledge, and referring to scientific reports, the Supreme Court said:

"For present purposes it need only be noted that oil in this state is found under layers of rock in a sand or sandstone formation termed a lentille or 'lentil', under pressure caused by the presence of natural gas within the formation. The layers of rock thus form a gas-tight dome or cover for the oil reserve. The oil adheres in the interstices between the sand particles. The natural gas may be in a free state at the top of the dome, but is also in solution with the oil, thus increasing the fluidity of the oil and the ease with which the oil is lifted with the gas in solution when the pressure on the gas is released by drilling into the oil 'sand.' It is estimated that only from ten to twenty-five per cent. of the total amount of oil deposited in a reservoir is ultimately recovered, depending on the natural characteristics of the reservoir and the methods employed in utilizing the lifting power of the gas. The importance of gas in the oil-producing industry has, therefore, become a question of great concern to the industry itself and to government, to the end that its function may be fully utilized without waste. It fairly appears on this application that, depending on its location in the oil reservoir, the extent of the oil 'sand', the degree of pressure within the formation, the amount of oil in the 'sand', the amount of gas in solution with the oil, the porosity of the 'sand' and other considerations, each oil and gas well has a best mean gas and oil ratio in the utilization of the lifting power of the gas and the production of the greatest quantity of oil in proportion to the amount of gas so utilized, and which may be computed as to each individual well to a reasonable degree of certainty and be regulated accordingly."

In view of these circumstances, the Supreme Court concluded that it might be said that there was an "unreasonable waste" of gas where it "has been allowed to come to the surface without its lifting power having been utilized to produce the greatest quantity of oil in proportion". It was such a waste of gas, the court said, that the legislature of California intended to prohibit. In support of this conclusion the court referred to the provisions of section 8d of the statute.[3] These provisions showed, in the opinion of the court, that the legislature had "plainly adopted the standard so expressed", that is, "that gas may not be produced, under existing conditions where the production thereof so greatly exceeds the market demand therefor, in quantities exceeding a reasonable proportion to the amount of oil produced." And, in explanation of its reasons for considering such a standard sufficiently definite, the court said that "because of the many and varying conditions peculiar to each reservoir and to each well, which will bear upon a determination of what is a reasonable proportion of gas to the amount of oil produced, it may be said that it would be impossible for the legislature to frame a measure based on ratios or percentages or definite proportions which would operate without discrimination, and that what is a reasonable proportion of gas to the amount of oil produced from each well or reservoir is a matter which may be ascertained to a fair degree of certainty in each individual case."

The statute is to be read with the construction placed upon it by the state court. *Lindsley* v. *Natural Carbonic Gas Company*, 220

[3]Section 8d relates to the procedure upon complaint of undue waste, and the portion quoted by the Supreme Court of the State is as follows: "If it shall appear that gas is being produced from any oil well or wells in quantities exceeding a reasonable proportion to the amount of oil produced from the same well or wells, even though it is shown that such excess gas is being used in the generation of light, heat, power or other industrial purpose and that there is sufficient other gas available for such uses from other wells in the same or other fields in which the gas produced is not in excess of the amount which bears a reasonable proportion to the amount of oil produced from such other wells and that there are adequate gas-pipe-line connections between such other wells and the place of utilization of such gas the state oil and gas supervisor shall hold that such excess production of gas is unreasonable waste thereof if such holding will not cause an unreasonable waste of gas in any other field."

U. S. 61, 73. And so read, we find no ground for concluding that the statute should be regarded as invalid upon its face, merely by reason of uncertainty, so as to deprive the Superior Court of jurisdiction to consider the relevant questions of fact and to determine with respect to a particular field whether or not there has been the unreasonable waste of gas which the statute condemns. *Nash* v. *United States*, 229 U. S. 373, 377; *Müller* v. *Strahl*, 239 U. S. 426, 434; *Omaechevarria* v. *Idaho*, 246 U. S. 343, 348; *Hygrade Provision Company* v. *Sherman*, 266 U. S. 497, 502.

The appellants make the further contention that the statute is invalid because of the provision of section 8b (*supra*, p. —) that "the blowing, release or escape of natural gas into the air shall be *prima facie* evidence of unreasonable waste." The State, in the exercise of its general power to prescribe rules of evidence, may provide that proof of a particular fact, or of several facts taken collectively, shall be *prima facie* evidence of another fact when there is some rational connection between the fact proved and the ultimate fact presumed. The legislative presumption is invalid when it is entirely arbitrary, or creates an invidious discrimination, or operates to deprive a party of a reasonable opportunity to present the pertinent facts in his defense. *Mobile, etc., Railroad Company* v. *Turnipseed*, 219 U. S. 35, 43; *Bailey* v. *Alabama*, 219 U. S. 218, 238; *Lindsley* v. *Natural Carbonic Gas Company, supra*, at pp. 81, 82; *Manley* v. *Georgia*, 279 U. S. 1, 5, 6; *Western & Atlantic* v. *Henderson*, 279 U. S. 639, 642. In the present case there is a manifest connection between the fact proved and the fact presumed, and under the construction placed upon the statute by the state court there appears to be no deprivation of a full opportunity to present all the facts relating to operations within the field.

The question remains whether the statutory scheme of regulation, with the standard which it sets up under the construction of the state court, is on its face beyond the power of the State. The District Court of Appeal, in the instant case, approached this question by considering the correlative rights, under the law of California, of surface owners in the same field. The court concluded that under the law of California "on account of the self propelling or migratory character of natural gas, as well as oil", the owner of the surface did not have an absolute title to the gas and oil be-

neath, and could acquire such a title only when he had reduced these substances to possession. As justifying this opinion, the court cited the case of *Acme Oil Company* v. *Williams* (140 Cal. 681; 74 Pac. 296) where the Supreme Court of the State had said, with respect to oil, that it is "of a fluctuating, uncertain, fugitive nature, lies at unknown depths, and the quantity, extent and trend of its flow are uncertain. It requires but a small surface area, in what is known as an oil district, upon which to commence operations for its discovery. But when a well is developed the oil may be tributary to it for a long distance through the strata which hold it. This flow is not inexhaustible, no certain control over it can be exercised, and its actual possession can only be obtained, as against others in the same field, engaged in the same enterprise, by diligent and continuous pumping. It is the property of anybody who can acquire the surface right to bore for it, and when the flow is penetrated, he who operates his well most diligently obtains the greatest benefit, and this advantage is increased in proportion as his neighbor similarly situated neglects his opportunity." And the Supreme Court of the State, in its decision dealing with the statute in question, quoted this language and held that "the same rule would apply to natural gas". 80 Cal. at p. 612; 294 Pac. at p. 722.

It was with that understanding of the law of the State that the District Court of Appeal considered the statute, taken as a whole, as one regulating and adjusting the co-existing rights of the surface owners in the same field and accordingly sustained the statute as a valid exercise of state power against the contentions under the due process clause. The court said: "It is the coexistence of these rights which authorizes the State to make use of its legislative power. When the rights of one impinge upon the rights of others the State may interpose for the purpose of adjusting and regulating the enjoyment of those rights". The District Court of Appeal apparently thought it doubtful whether the State might restrict or regulate the production of oil or gas "on the theory of the public's interest in their natural resources" but deemed it unnecessary to decide that question in the present case. That court explicitly refused to accept the view that the statute "does not proceed upon the theory of correlative rights, but only upon the

policy of conserving or preserving the common supply". And, replying to the suggestion that the legislature was without authority to restrict the production of oil, the District Court of Appeal concluded its opinion with the statement that the record did not "indicate that the temporary injunction was founded upon such a theory. Nor are we determining that the Act attempts to confer upon the court any such power. Rather we are convinced that a proper construction of the enactment confines the authority within the limits of enjoining the production of gas when in excess of the reasonable proportion to the oil for the particular field involved, when not conveniently necessary for other than lifting purposes."

While this was the basis of the decision of the District Court of Appeal, the appellants insist that, in the subsequent decisions upon the appeal from the injunction order of the Superior Court, the Supreme Court of the State has taken a broader ground and has upheld the statute as one designed to protect the public interest in the conservation of natural resources. 80 Cal. at pp. 612-614; 294 Pac. at pp. 722, 723. We do not understand, however, that the Supreme Court in taking that view denied the operation of the statute as a safeguard of the co-existing rights of surface owners. On the contrary, the Supreme Court, in its second decision affirming the injunction order of the Superior Court, summed up its conclusions in these words (81 Cal. at p. 471; 297 Pac. at pp. 537, 538): "We reiterate that the legislation in question has lawfully vested in the Superior Court the power to determine what wastage of gas in the production of oil is reasonable or unreasonable. Whether such wastage be reasonable or unreasonable is a question of fact and should be determined in view of the necessity of one land owner to make productive use of his parcel, in view of the equal right of the adjoining owners not to be deprived of correlative production from their parcels and in view of the right of the public to prevent the waste of that which cannot be replaced."

If the statute be viewed as one regulating the exercise of the correlative rights of surface owners with respect to a common source of supply of oil and gas, the conclusion that the statute is valid upon its face, that is, considered apart from any attempted application of it in administration which might violate consti-

tutional right, is fully supported by the decisions of this Court. *Ohio Oil Company* v. *Indiana*, 177 U. S. 190, 210, 211; *Lindsley* v. *Natural Carbonic Gas Company, supra*, at p. 77; *Walls* v. *Midland Carbon Company*, 254 U. S. 300, 323. In that aspect, the statute unquestionably has a valid operation, and it cannot be said that the Superior Court was without jurisdiction to entertain the suit in which the injunction order was granted. That was all that the District Court of Appeal determined in the judgment now under review. It is not necessary to go further and to deal with contentions not suitably raised by the record before us. Constitutional questions are not to be dealt with abstractly. Having jurisdiction of the suit the Superior Court had authority to take steps to protect the subject matter of the action pending the trial on the merits. The injunction order stated that to be its purpose. Upon the trial, all questions of fact and of law relevant to the application and enforcement of the statute may be raised and every constitutional right which these appellants may have in any aspect of the case as finally developed may be appropriately asserted and determined in due course of procedure.

Judgment affirmed.

A true copy,

Test:

Clerk, Supreme Court, U. S.